News about

B. F. Goodrich Chemical *raw materials*

Good-rite Reg. U. S. Pat. Off.

Resin 50

improves processing

Good-rite Resin 50—a thermoplastic reinforcing resin that is compatible with crude and American rubbers—offers the compounder many important advantages.

★ **Improves mixing, calendering, and extrusion characteristics of compounds to which it is added.**

★ **Easily handled; does not require masterbatching.**

★ **Makes premium quality compounds in all ranges of hardness.**

★ **Makes easy-to-extrude high-hardness compounds in full range of colors.**

Good-rite Resin 50 is produced as a finely divided, free-flowing, odorless white powder, easily blended with other polymers. To find out how Resin 50 will enable you to make *better* products at *lower costs*, please write Dept. CJ-8, B. F. Goodrich Chemical Company, Rose Building, Cleveland 15, Ohio. In Canada: Kitchener, Ontario. Cable address: Goodchemco.

makes premium products

You'll find Resin 50 in the recipe wherever the product needs superior flex life, hardness without sacrifice of strength, improved abrasion resistance, and light weight. Are any of your products listed here?

★ **Floor Tile, Under-chair Pads**

★ **Shoe Soles, Safety Shoes**

★ **Golf Bag Bottoms, Club-heads**

★ **Wire & Cable Insulation**

★ **Battery Cases, Battery Caps**

★ **Drainboards, Strainers**

B. F. Goodrich Chemical Company
A Division of The B. F. Goodrich Company

Hycar Reg. U. S. Pat. Off.
American Rubber

GEON polyvinyl materials • HYCAR American rubber and latex • GOOD-RITE chemicals and plasticizers • HARMON colors

PHILBLACK® RESEARCH reveals new clues to improved rubber products!

For example, tests prove that Philblack O assures a uniform matrix with both synthetic and natural rubber . . . fine dispersion in new or reclaim polymers. Rubber made with this High Abrasion Furnace black provides good electrical conductivity, excellent flex life and long-wearing qualities.

By working with many grades of carbon blacks at various loadings and different acceleration rates . . . by determining moisture absorption and its effects . . . by collecting data on aging and tensile strength at high and low temperatures . . . by constantly experimenting, testing and checking results, Philblack scientists have amassed a wealth of information that is extremely valuable to manufacturers of rubber products.

Philblack customers can benefit from Phillips many years of research and practical experience in the carbon black field. If you would like to achieve certain characteristics in your finished product . . . reduce operational difficulties . . . or set up quality controls, consult your Philblack representative.

The electron microscope (50,000 X) shows that Philblack O is a fine particle black with moderate chain structure.

Know the Philblacks! KNOW WHAT THEY'LL DO FOR YOU!

A **Philblack A FEF Fast Extrusion Furnace Black**
Ideal for smooth tubing, accurate molding, satiny finish. Mixes easily. High, hot tensile. Disperses heat. Non-staining.

O **Philblack O HAF High Abrasion Furnace Black**
For long, durable life. Good electrical conductivity. Excellent flex Fine dispersion.

I **Philblack I ISAF Intermediate Super Abrasion Furnace Black**
Superior abrasion resistance at moderate cost. Very high resistance to cuts and cracks. More tread miles at high speeds.

E **Philblack E SAF Super Abrasion Furnace Black**
Toughest black on the market. Extreme abrasion resistance. Withstands aging, cracking, cutting and chipping.

Phillips 66

PHILLIPS CHEMICAL COMPANY, Rubber Chemicals Division, 318 Water St., Akron 8, Ohio. Export Sales: 80 Broadway, New York 5, N. Y. West Coast: Harwick Standard Chemical Company, Los Angeles, California. Canada: H L. Blachford, Ltd., Montreal and Toronto.

Rubber Epicure?

—here's a recipe that will delight you!

SLAB SOLE COMPOUND

	Parts by Weight
GR-S, 1006	90
High Styrene Resin	10
NEVILLE LX-685, 135	12
Antioxidant	1
Calcium Silicate	50
Hard Clay	200
Zinc Oxide	5
Process Oil	5
Mold Lubricant	2.5
Stearic Acid	1.5
Benzothiazyl Disulfide	1.5
Zinc Dimethyl Dithiocarbamate	0.5
Rubbermakers Sulfur	4
Total	**383.0**

For extremely high hardness, approximately 5 parts of phenolic resin may be added

Cure: 6 minutes at 310°F.
Specific Gravity: 1.66
Hardness, Shore A: 96
Color: Light Brown
Mold Release: Good
Hot Tear Resistance: Good
Cost per pound (estimated): $.092

To Satisfy Your Epicurian Taste for

EASE OF PROCESSING
HIGH HARDNESS
ABRASION RESISTANCE

at low cost specify
NEVILLE LX-685,135

NEVILLE CHEMICAL CO.
PITTSBURGH 25, PA.
Plants at Neville Island, Pa., and Anaheim, Cal.

R-56

NEVILLE

Oil and Water Mix Profitably

when your hose contains **CHEMIGUM**

Oil often moves from rigs to refineries and, thence, to market by water. Much hose is needed in the great and growing petroleum industry, without doubt the prime market. Recent estimates indicate that approximately 11,000,000 feet of new hose in many types and sizes are required each year to move oil and related products from producer to consumer.

Regardless of the type of hose you make or are interested in making, you can assure its suitability for oil service by compounding with CHEMIGUM—first and finest of the nitrile rubbers. The family of CHEMIGUM rubbers provides a range of chemical and physical properties to meet every oil service need. Moreover, they can be blended with PLIOFLEX—Goodyear Synthetic Rubber—for even greater versatility in cost and characteristics.

Used alone, CHEMIGUM offers the maximum in oil resistance coupled with ease of processing. CHEMIGUM tends to soften, rather than toughen, during mastication to give fast, low-cost mixing. Other advantages of CHEMIGUM include excellent uniformity, a light color, a lightweight bale, better bin aging, faster sulfurless cures and maximum physical properties.

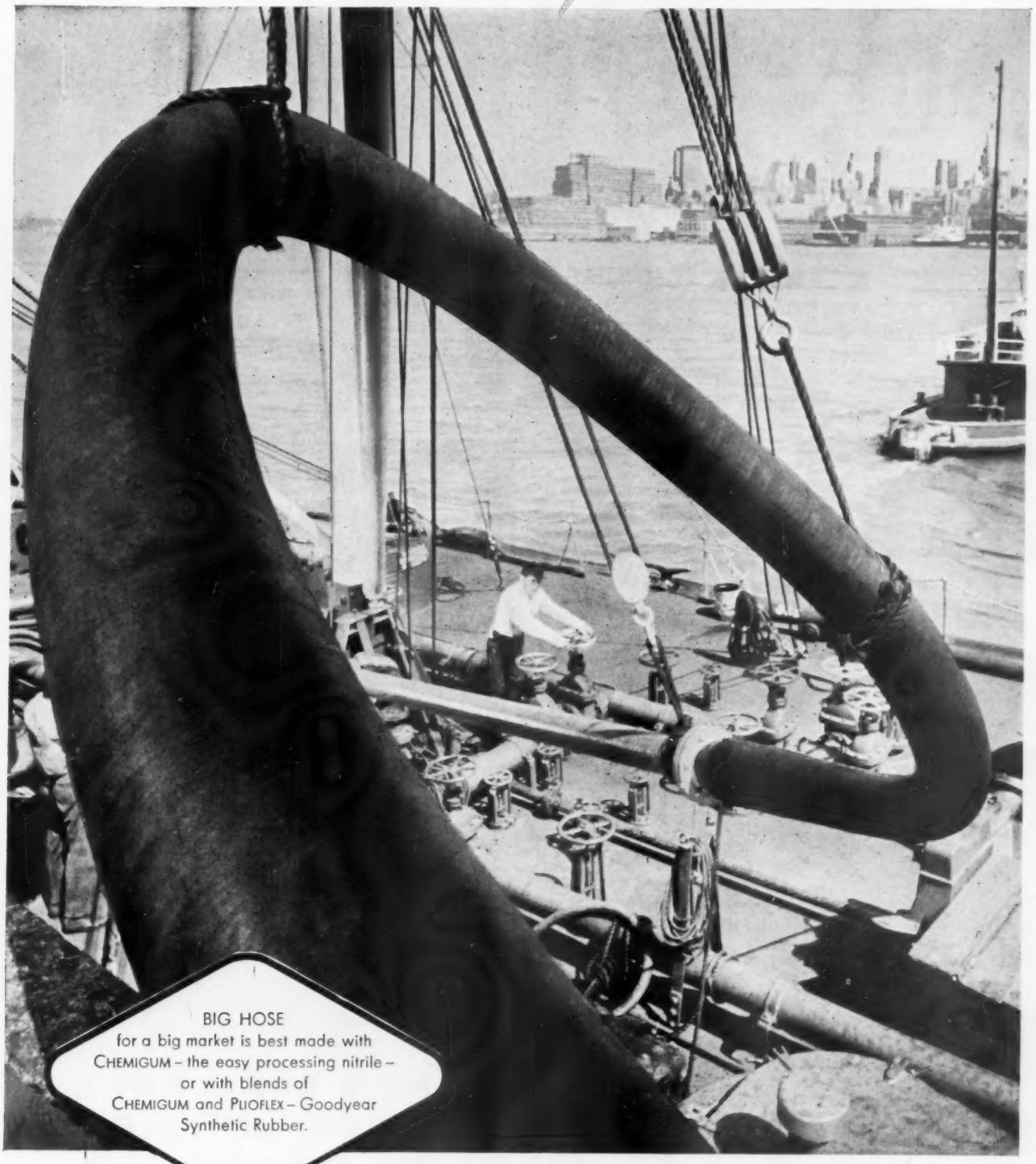
When combined with PLIOFLEX, CHEMIGUM still imparts excellent oil- and solvent-resistance which can be varied to meet specific needs and costs. These low-cost blends exhibit low specific gravities and low scorch values. And formulations based on CHEMIGUM/PLIOFLEX blends can be compounded to provide excellent resistance to abrasion, weathering and low temperature flexing.

Why not investigate CHEMIGUM and CHEMIGUM/PLIOFLEX blends for all oil-resistant uses, today? Samples and technical help are yours by writing to:
Goodyear, Chemical Division, Akron 16, Ohio

CHEMICAL GOODYEAR DIVISION

The Finest Chemicals for Industry — CHEMIGUM • PLIOBOND • PLIOFLEX • PLIOLITE • PLIO-TUF • PLIOVIC • WING-CHEMICALS

CHEMIGUM ... another quality product of Goodyear Chemical Division



BIG HOSE
for a big market is best made with
CHEMIGUM – the easy processing nitrile –
or with blends of
CHEMIGUM and PLIOFLEX – Goodyear
Synthetic Rubber.

Chemigum, Pliobond, Plioflex, Pliolite, Plio-Tuf, Pliovic – T. M.'s The Goodyear Tire & Rubber Company, Akron, Ohio

- a highly reinforcing white pigment
- excellent resistance to scorch
- good dispersing characteristics

ZEOLEX 23*

*Microlitic Zeolite

PHYSICAL PROPERTIES:

pH (20% water slurry)	10-11
Form	Dry Powder
Handling Precautions	None (non-toxic)
Specific Gravity	2.10
Screen Residue (325 mesh)	0.1% Maximum
Free Moisture (Maximum)	5%

PROMPT SHIPMENTS AVAILABLE FROM OUR CHEMICALS DIVISION PLANT AT HAVRE DE GRACE, MD.

J. M. HUBER CORPORATION, 100 PARK AVENUE, NEW YORK 17, N. Y.

HUBER

Manufacturers of: Channel Black, Furnace Black, Rubber Clays, Rubber Chemicals

Rubber Age

COVERING THE MANUFACTURE OF RUBBER AND RUBBERLIKE PLASTICS PRODUCTS

Published Monthly by
PALMERTON PUBLISHING CO., INC.
Editorial and Advertising Offices
101 West 31st St.,
New York 1, N. Y.
PEnnsylvania 6-6872

P. L. PALMERTON, *President*
E. D. OSBORN, *Vice-Pres. and Sec'y.*
PETER P. PINTO, *Treasurer*
M. E. LERNER, *Assistant Treasurer*

STAFF

M. E. LERNER
Editor

B. J. KOTSHER
Associate Editor

KENNETH T. CORELL
Production Manager

ELLA MAY DARRIN
Circulation Manager

CHARLES T. JANSEN
Advertising Manager

PETER P. PINTO
General Manager

NEWS CORRESPONDENTS

CARL S. HOGLUND
5107 Telegraph Road, Los Angeles 22, Calif. — Phone: ANgelus 1-8136.

PHIL GLANZER
223 Coldstream Ave., Toronto 12, Ontario, Canada — Phone: MAfair 8181.

ADVERTISING REPRESENTATIVES

New England
F. ROYAL CAREY
28 Rosewood Ave., Cranston 5, R. I.—Phone: WIlliams 1-3957.

Chicago
LARRY M. LYONS
549 West Washington St., Chicago 6, Ill.—Phone: CEntral 6-0545.

SUBSCRIPTION RATES

	U.S.	Canada	Other
1 Year	$5.00	$5.50	$6.00
2 Years	7.50	8.50	9.50
3 Years	10.00	11.50	13.00

Single copies (up to 3 months) 50c
Single copies (over 3 months) 75c

CONTENTS

VOL. 77, NO. 5 **AUGUST, 1955**

Tear Resistance of Vulcanized Hevea Latex Films—*By J. W. F. van 't Wout and A. J. de Vries* 693

A comprehensive report on improving the tear resistance of latex films by increasing the alkalinity of the compound through the addition of potassium hydroxide or guanidine derivatives.

Two-Part System Speeds Rubber Parts Handling 699

How the Monarch Rubber Co. of Hartville, Ohio, has gained important materials handling economies with drop-bottom boxes and positioning stands.

Manufacture and Fabrication of Urethane Foams 700

A two-page picture story tracing step-by-step methods utilized in the manufacture and fabrication of foams.

Recent Developments in Motor Insulation for Rubber and Plastics Service—*By William Schneider* 702

Protective Materials for Rubber: Antioxidants, Antiozonants and Waxes 705

A run-down of the questions and answers which featured a recent meeting of the Akron Rubber Group. Includes brief addresses made by the panelists.

REGULAR DEPARTMENTS

Book Reviews	762	Los Angeles News	746
Canadian News	750	Markets	766
Chemical Prices	770	Names in the News	738
Classified Ads	783	New Equipment	758
Coming Events	734	New Goods	754
Editorials	717	Obituaries	752
Financial News	742	Statistics	*

*Appears every other month

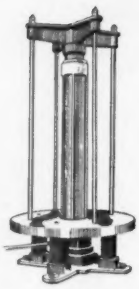
Microfilm copies of complete volumes of RUBBER AGE are available from: University Microfilms, 313 North First St., Ann Arbor, Mich.

Indexed in Industrial Arts Index and Engineering Index

Contents Copyrighted 1955

in the good old days

When it was necessary to reinforce the floor under the weight-type accumulator installation . . . when the maintenance gang held its breath to see if the old accumulator would rise far enough to keep pressure in the lines . . . when it was possible to keep packing on the accumulator ram only for a week or so



ERIE FOUNDRY WAS A GREAT NAME IN SPECIAL HYDRAULIC EQUIPMENT

today...we're still pioneering...

Erie Foundry offers this compact, lightweight, minimum maintenance hydraulic power system with many worthwhile advantages:

- a 10 h.p. electric motor which drives
- a 300# accumulator for low pressures, and
- a 2000# air bottle with a separating cylinder for high pressure, which is charged by
- a small radial air compressor driven by
- a 7½ h.p. electric motor, plus
- a control unit—electric, of course.

It has safety controls for both high and low pressure oil systems.

This pictured ERIE Hydraulic Power System is designed to supply 6 314-ton rubber-molding presses having 18″ stroke plus 6 lift tables all based on a 3 minute cycle.

Similar ERIE Hydraulic Power Systems are available in all sizes to suit your requirements.

Several very good reasons why . . .

ERIE FOUNDRY IS THE GREATEST NAME IN SPECIAL HYDRAULIC EQUIPMENT

ERIE

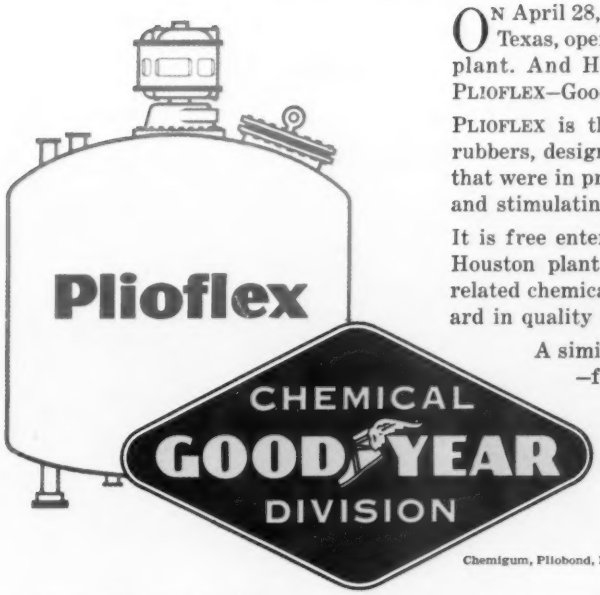
in our 60th year

for more information call or write

HYDRAULIC PRESS DIVISION

ERIE FOUNDRY CO. ERIE, PA.

Now—a new standard in synthetic rubber!



ON April 28, 1955, the Government synthetic rubber plant in Houston, Texas, operated by Goodyear for nearly 15 years, became a Goodyear plant. And Houston GR-S—Government Rubber-Styrene—became PLIOFLEX—Goodyear Synthetic Rubber.

PLIOFLEX is the family name for a series of primarily nonstaining rubbers, designed for many uses. These are basically the same rubbers that were in production when the plant changed hands. However, a new and stimulating ingredient—free enterprise—has been added.

It is free enterprise *plus* 15 years' experience in the operation of the Houston plant *plus* many more years of manufacturing and selling related chemicals to industry that permits PLIOFLEX to set a new standard in quality and service for synthetic rubber.

A similar standard also has been raised for the PLIOLITE latices —former GR-S latices now being manufactured in the also newly acquired Goodyear plant at Akron, Ohio.

Further details, in the form of a four-color, 24-page brochure, "PLIOFLEX Synthetic Rubber," are yours by writing, on company letterhead, to: Goodyear, Chemical Division, Dept. H-9419, Akron 16, Ohio.

Chemigum, Pliobond, Plioflex, Pliolite, Plio-Tuf, Pliovic—T. M.'s The Goodyear Tire & Rubber Company, Akron, Ohio

The Finest Chemicals for Industry—CHEMIGUM • PLIOBOND • PLIOFLEX • PLIOLITE • PLIO-TUF • PLIOVIC • WING-CHEMICALS

AVOID DUST PROBLEMS

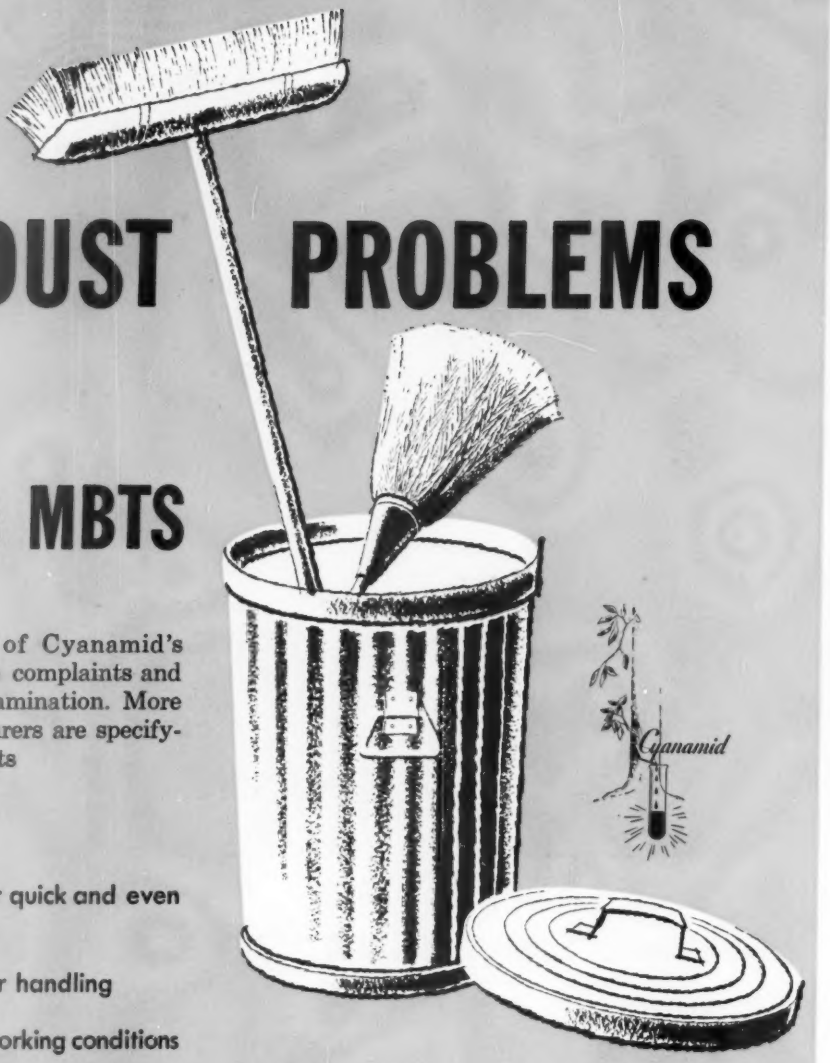
with Cyanamid's MBTS

The non-dusting quality of Cyanamid's MBTS eliminates employee complaints and helps prevent product contamination. More and more rubber manufacturers are specifying Cyanamid's MBTS for its

... PLUS VALUES

- **easily dispersible** for quick and even distribution
- **free flowing** for easier handling
- **odorless** for improved working conditions

Have you received your copy of Technical Bulletin No. 839: *The Thiazole Accelerators MBT and MBTS?* This free 31-page brochure is a general reference for the newly established chemist as well as the experienced technologist. Send for it today.



Calco ®

AMERICAN Cyanamid COMPANY

INTERMEDIATE & RUBBER CHEMICALS DEPARTMENT

BOUND BROOK, NEW JERSEY

SALES REPRESENTATIVES AND WAREHOUSE STOCKS: Akron Chemical Company, Akron, Ohio • H. M. Royal, Inc., Trenton, N. J. • H. M. Royal, Inc., Los Angeles, Calif. • Ernest Jacoby and Company, Boston, Mass. • Herron & Meyer of Chicago, Chicago, Ill. • In Canada: St. Lawrence Chemical Company, Ltd., Montreal and Toronto

One Step

MIXING OPERATIONS

and elimination of masterbatching with Superior Processing

NEW

Marbon "8000-A"®

Reinforcing High Styrene Resin

- **FASTER FUSION AT LOWER TEMPERATURES**
- **COOLER MIXING AND IMPROVED DISPERSION**
- **BETTER PIGMENT WETTING**

Recommended especially for scorchy Neoprene and Natural Rubber compounds, and for all open-mill mixing

Marbon "8000-A" resin fluxes rapidly at lower temperatures (165-175 degrees F.) for improved dispersion, shorter mixing cycles, cleaner, brighter colors, faster heat-plasticizing action with lowered power demand.

Marbon "8000-A" is a superior-processing resin with all the reinforcing properties of Marbon 8000. Especially suitable for OPEN MILL mixing under marginal heat conditions, scorchy Neoprene or Natural Rubber compounds.

WRITE *Today* FOR COMPLETE TECHNICAL LITERATURE

Marbon®

MARBON CHEMICAL

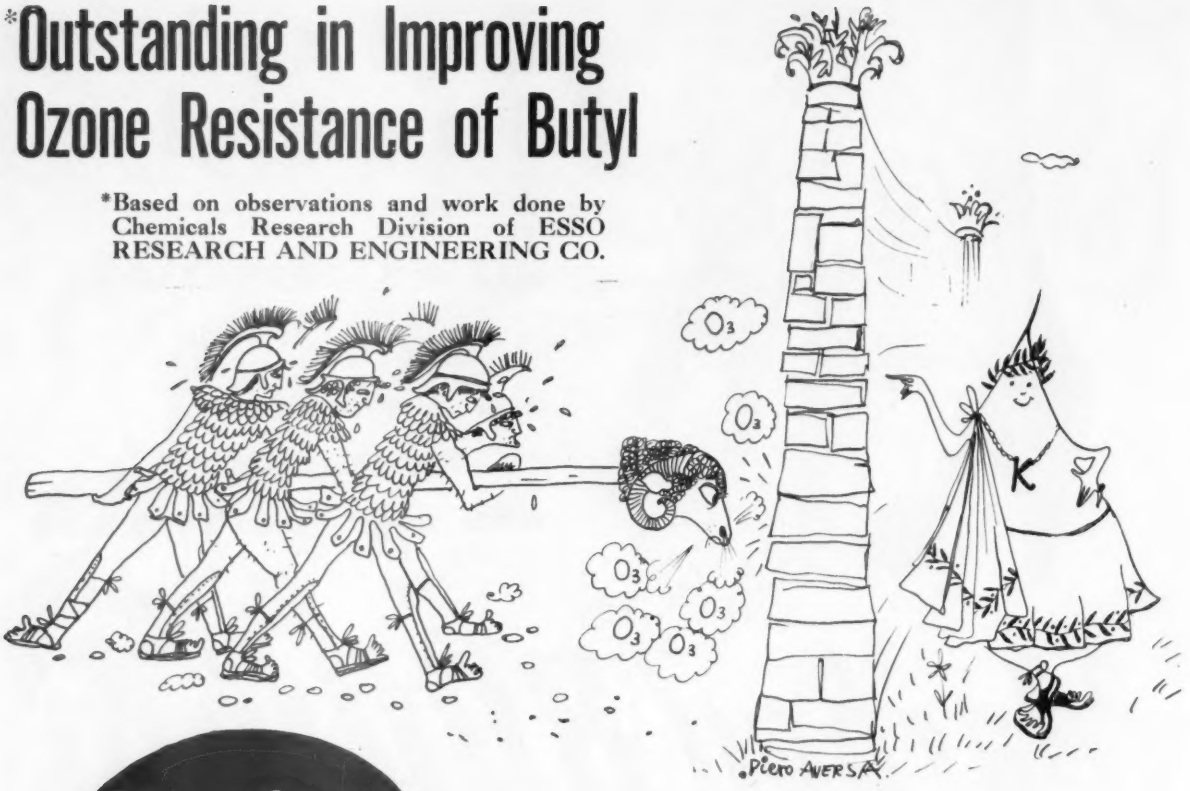
Division of BORG-WARNER

GARY, INDIANA

It BLENDS as it STRENGTHENS as it IMPROVES

*Outstanding in Improving Ozone Resistance of Butyl

*Based on observations and work done by Chemicals Research Division of ESSO RESEARCH AND ENGINEERING CO.



Kenflex Resins

DISPERSIONS FOR BUTYL CURE

KENMIX GMF
KENMIX DI-BENZO GMF
KENMIX RED LEAD

High Quality Smooth paste form is superior to a masterbatch. Excellent dispersion and uniformity, thoroughly wetted out, contributes to good physicals, electricals and aging.

Safe Overcomes hazard of handling of heat sensitive, dusty GMF, and toxic Red Lead. Protects accelerators from moisture and CO_2.

Labor Saver Eliminates expensive Butyl masterbatching and cleanup.

KENMIX RED LEAD FOR MOISTURE RESISTANT NEOPRENE
KENMIX LITHARGE FOR HYPALON

All above features apply to these two dispersions and in addition provide rapid introduction at low temperatures, contributing to — **SHORT HEAT HISTORY — SCORCH CONTROL**

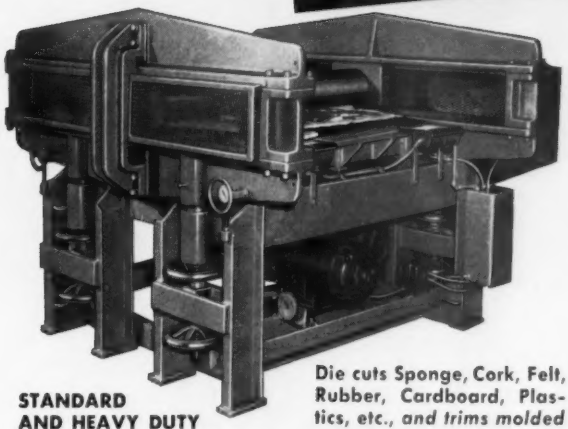
Write today for technical information on how KENFLEX Resins and KENMIX Dispersions can improve your products and processing

KENRICH CORPORATION
57-02 48 Street, Maspeth 78, New York

COUNT YOUR PROFITS!

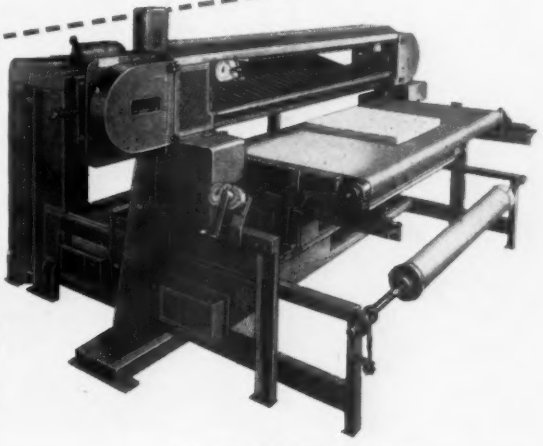
with **Campbell** SPECIAL MACHINES

WHAT do you want to cut, trim, split or shape? Is it Foam Rubber, synthetic or natural? Is it plastic? Is it Cork, Cellulose Sponge, Wood Fiber, Latex or Bonded Foam, Resin Bonded Fiber, Fiberglass, or Rubberized Hair? Campbell New, Improved Splitters, Die Cutters and Cushion Cutters are setting producion records *and lowering costs* in die cutting, splitting and shaping these and other materials. Call us for quotations and more facts. Send us your particular stock for test cutting without obligation.



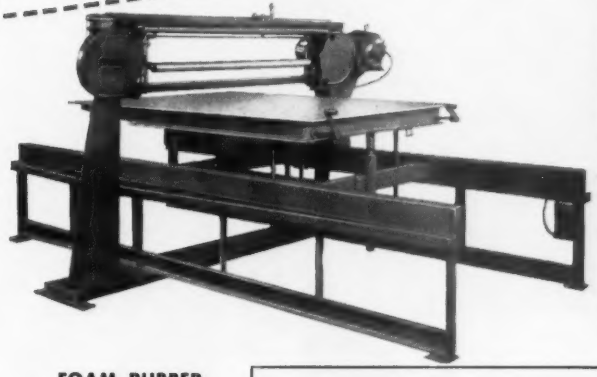
STANDARD AND HEAVY DUTY ROLLER DIE CUTTER (bed area to 24 sq. ft.)

Die cuts Sponge, Cork, Felt, Rubber, Cardboard, Plastics, etc., *and trims molded rubber goods.* Standard and Heavy Duty Models.



FOAM RUBBER SPLITTER

This is our newest Splitter, engineered especially to split synthetic materials, plastics, etc. Splits rolls, slabs, sheets to ⅛" thickness, at 9 to 26 feet per minute.



FOAM RUBBER CUSHION CUTTER

The Cushion Cutter is ideal for fabricating cushioning and seating stock, including plastic materials, also for leveling materials before splitting.

These machines will die cut or split Synthetic and Natural Foam Rubber, Latex and Bonded Foam, Rubberized Hair, Cellulose Sponge, Cork, Resin Bonded Fiber, Wood Fiber, Fiberglass and Plastics in rolls, slabs and sheets.

FEMCO'S V-BELT EQUIPMENT

Includes Collapsible and Ring Molds, Curing Cages, Autoclave Type Belt Molders, Hydraulic and Manual Manipulators, Vertical and Horizontal Type Measuring and Matching Machines, Notching Machines, the new and improved V-Belt Skiving Machine, and a new and improved V-Belt Collapsible Building Drum. Call us first for this equipment.

The FALLS ENGINEERING AND MACHINE CO.

Established 1917

1734 FRONT ST., CUYAHOGA FALLS, O.

Need more protection?

STABILITE*

THE ANTIOXIDANT WITH UNIQUE CHARACTERISTICS

When looking for the most economical and outstanding antioxidant for both natural and synthetic rubber, consider STABILITE, which has, combined in one material, the following characteristics:

1. *Protection against oxidation and heat, sunchecking and mechanical flexing.*
2. *Distinct softening effect on uncured rubber or GR-S, resulting in better processing and dispersion, smoother calendering and tubing and at the same time without effect on modulus at cure.*
3. *The unique property of increasing the effect of most commercial antioxidants when used in conjunction with* STABILITE. *The effect of such mixtures is greater than the components.*

For the protection of your rubber products use STABILITE; for maximum resistance to oxidation, heat, sunchecking and mechanical flexing replace part of your present antioxidant with STABILITE.

The C. P. Hall Co.
CHEMICAL MANUFACTURERS

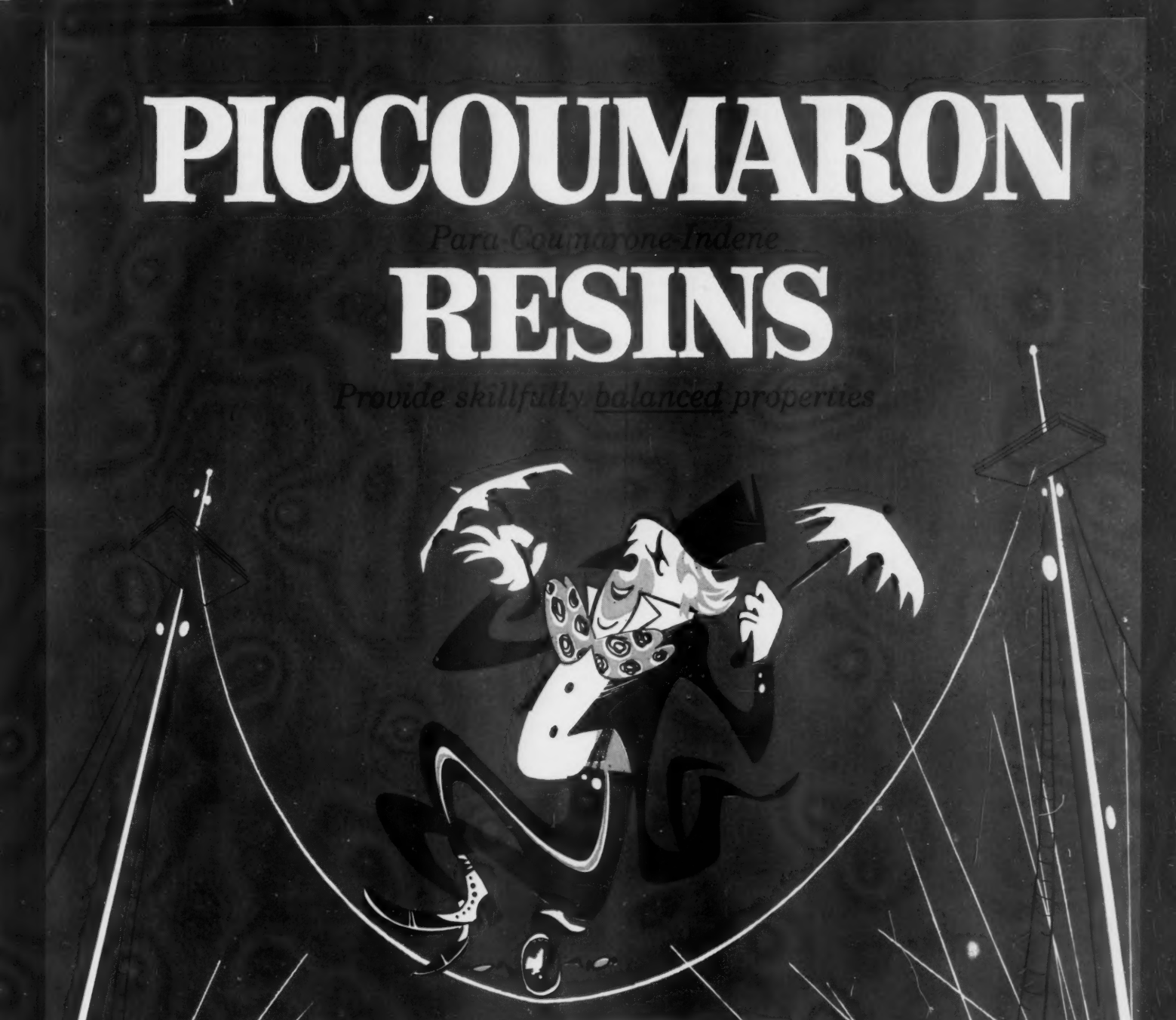
*MANUFACTURED BY CHEMICO, INC.
THE C. P. HALL CO. *Manufacturing Agents*

PICCOUMARON

Para-Coumarone-Indene

RESINS

Provide skillfully balanced properties



The properties of PICCOUMARON Resins include: COMPATIBILITY with most other resins, waxes, coal tar residues, oils, rubber and other materials; SOLUBILITY in coal tar, turpentine and terpene solvents; RESISTANCE to most acids, alkalies, salts.

Available in ten melting points, from a liquid to a hard brittle solid. Colors, from pale yellow to dark reddish brown.

Send for complete data and samples.

Pennsylvania Industrial Chemical Corp.

Clairton, Pennsylvania

Plants at:

Clairton, Pa.; West Elizabeth, Pa.; and Chester, Pa.

District Sales Offices

New York, Chicago, Philadelphia, Pittsburgh, Detroit

Distributed by

Harwick Standard Chemical Co., Akron 5, Ohio

Pennsylvania Industrial Chemical Corp. (RA)
Clairton, Pennsylvania

Please send bulletin and samples of Piccoumaron for

(application)_____

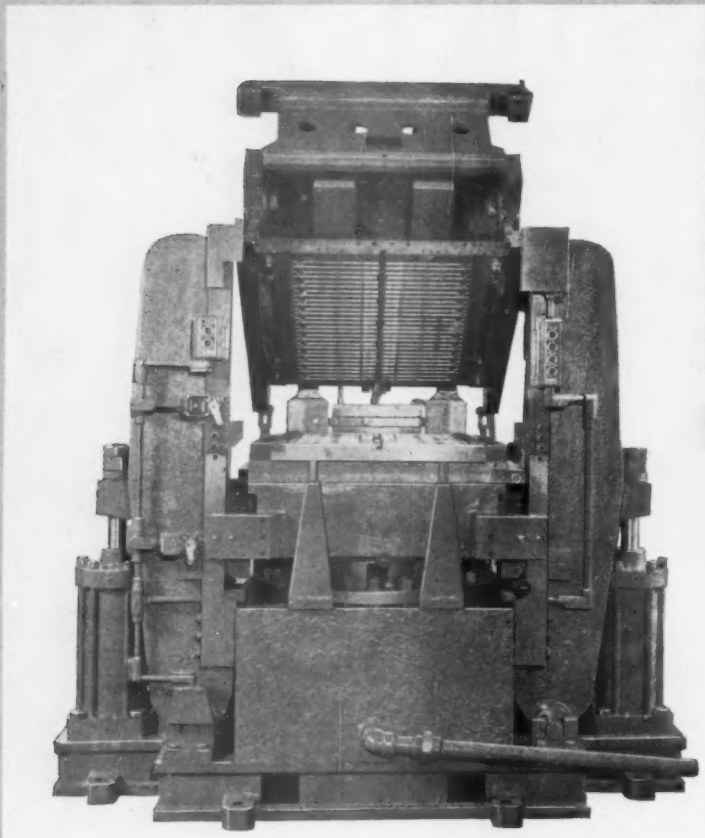
Name_____ Position_____

Company_____

Address_____

TILTING

TILTING HEAD PRESS



REMOVE THE WORK WITHOUT REMOVING THE MOLDS

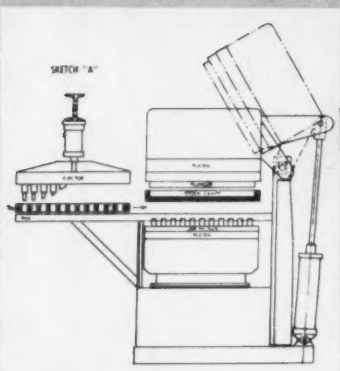
Molds fasten to platen. Jaws open — operator removes work. Molds are filled — press closes. High unit platen pressure.

Easy accessibility to all parts of mold and stock cavity, in combination with short ram stroke to minimize overall working cycle.

Useful for deep or shallow molding. Can be equipped for Transfer Molding. Operates off Centralized Hydraulic System or individual pumps. No heavy lifting or straining. No chance for off register of molds.

Hydraulic operation has the advantage of giving full pressure at any position of the ram during its working stroke.

Note: A movie film showing complete cycle operation available in 16 mm.

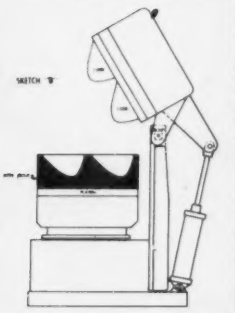


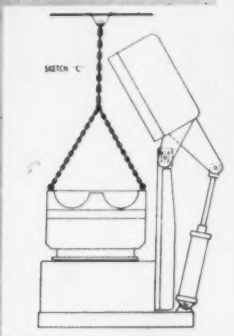
VERSATILITY

In this transfer molding operation, mold retracts from press for ejection of parts, such as vertically molded bushings.

COMPRESSION MOLDING

Although deep molds must remain in press, ample working space is provided with minimum working stroke.



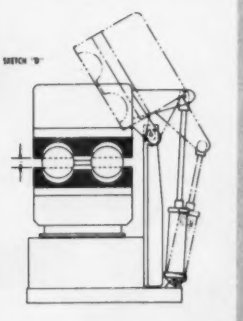


MOLD SET-UP

Heavy molds can be set up in press with overhead hoist . . . saving time and "horsing" of expensive molds.

SHORT STROKE

Actual power stroke of main ram is held to the minimum. 95% of working space (day light) is accomplished by quick acting tilting head. Only 3½" of ram travel required to actuate press.



Sales and Engineering by

HALE and KULLGREN, INC.

P. O. Box 1231 · AKRON, OHIO

MANUFACTURED BY

THE AETNA-STANDARD ENGINEERING CO., PITTSBURGH, PA.

PLANTS IN WARREN, OHIO · ELLWOOD CITY, PA.

Your Inquiry . . .

Address to: Hale and Kullgren, Inc.
613 E. Tallmadge Ave., Akron 10, Ohio

How long did it take...
to get from here... to here?

Answer: 27 years

Before electric headlights were introduced in 1913, night driving by feeble, undependable light was a hazardous venture. Further research led to the development of today's high-performance sealed beam lights which became standard equipment on 1940 cars.

At the same time, the rubber industry was developing new and better ways to make rubber work harder. Partner in this development is Monsanto with its group of high-performance rubber chemicals which have done—and are still doing—so much to improve tires and other rubber products.

For example, Monsanto Santocure was the original commercially produced sulfenamide type accelerator and with Santocure NS is considered a standard of the rubber industry. Santocure NS has similar behavior in compounded rubbers as Santocure, and is characterized by excellent delayed action which gives greater freedom from scorch. The amount of Santocure NS can generally be reduced about 10% because of its greater strength.

Write today, for your copy of catalog "Chemicals for the Rubber Industry," to MONSANTO CHEMICAL COMPANY, Rubber Chemicals Dept., 920 Brown Street, Akron 11, Ohio.

MONSANTO
CHEMICALS – PLASTICS

SERVING INDUSTRY ... WHICH SERVES MANKIND

MONSANTO CHEMICALS FOR THE RUBBER INDUSTRY

ANTIOXIDANTS
Flectol* H
Santoflex* DD
Santoflex 75
Santoflex AW
Santowhite* Crystals
Santowhite MK
Santowhite L
Santowhite Powder

MERCAPTO ACCELERATORS
Santocure* NS
Santocure
El-Sixty*
Mertax (Purified Thiotax)
Thiotax* (2-Mercapto-benzothiazole)
Thiofide* (2,2'-dithiobis (benzothiazole))
Thiofide S (Seed Form)

ALDEHYDE-AMINE ACCELERATORS
A-32
A-100

SPECIAL MATERIALS
Thiocarbanilide ("A-1")
Santovar*-A
Sulfasan* R
Insoluble Sulfur "60"

ULTRA ACCELERATORS FOR LATEX, ETC.
R-2 Crystals
RZ-50-A
RZ-50-B
Thiurad* (Tetramethyl-thiuram-disulfide)
Mono Thiurad (Tetramethyl-thiuram-monosulfide)
Ethyl Thiurad (Tetraethyl-thiuram-disulfide)

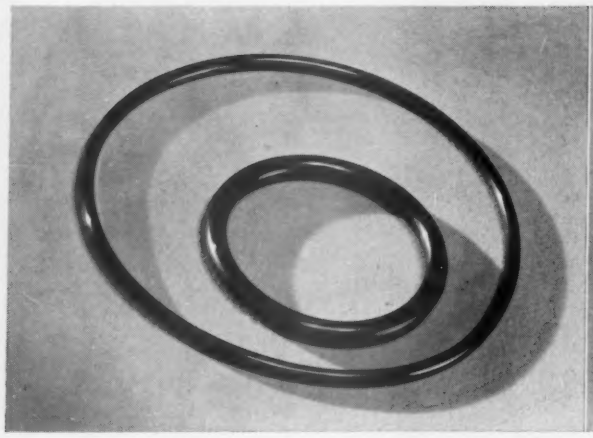
GUANIDINE ACCELERATORS
Diphenylguanidine (D.P.G.)
Guantal*

COLORS

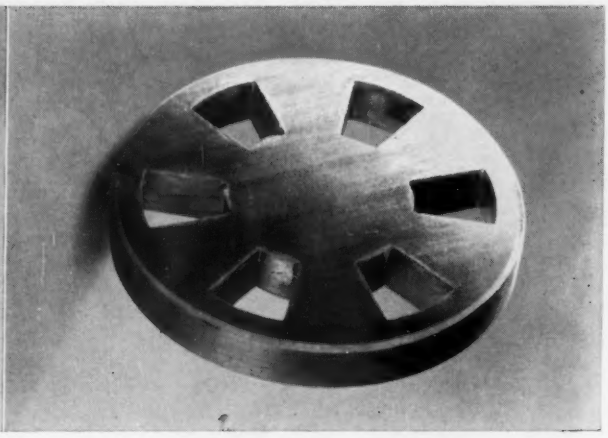
REODORANTS

DUREZ

RESINS FOR BETTER PERFORMANCE

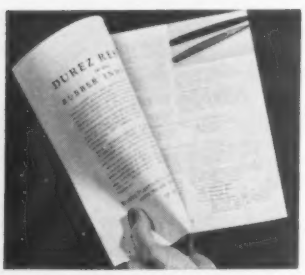


. . . with Buna-N



. . . with Neoprene

International Packings Corporation watches the quality of its packings, oil seals, and other specialties like a hawk, overlooking no opportunity to improve their performance in service. Here are two examples illustrating the benefits of compounding hard and semi-hard stocks with Durez phenolic resins.



Speaking of the Buna-N "O" rings, the manufacturer says, "Durez-reinforced Buna-N is advantageous over carbon black loading in the higher durometer ranges because of better processing and superior physical properties in the cured state." The larger ring is of 97 Shore A hardness, while the smaller ring is a 95 durometer for static application where pressures in excess of 2,000 p.s.i. are encountered.

The 3-1/2″ x 1-1/2″ coupling disk is made of Neoprene-and-Durez to obtain the excellent impact resistance, transverse strength, and hardness required in power transmission service. It does the job, it is said, better than canvas-and-rubber or hard ebonite — and at a lower cost.

If you are not already familiar with the latest developments in resins and their use in compounded stocks, solvent-type adhesives, and latices, our experience is yours to call on at any time. Why not write us today?

YOURS FOR THE ASKING — we'll gladly furnish technical data and help you select the phenolic resin best suited to your needs. As a starter, let us send you our newest bulletin on Phenolic Resins in Rubber.

DUREZ PLASTICS DIVISION
HOOKER ELECTROCHEMICAL COMPANY
108 Walck Road, North Tonawanda, N. Y.

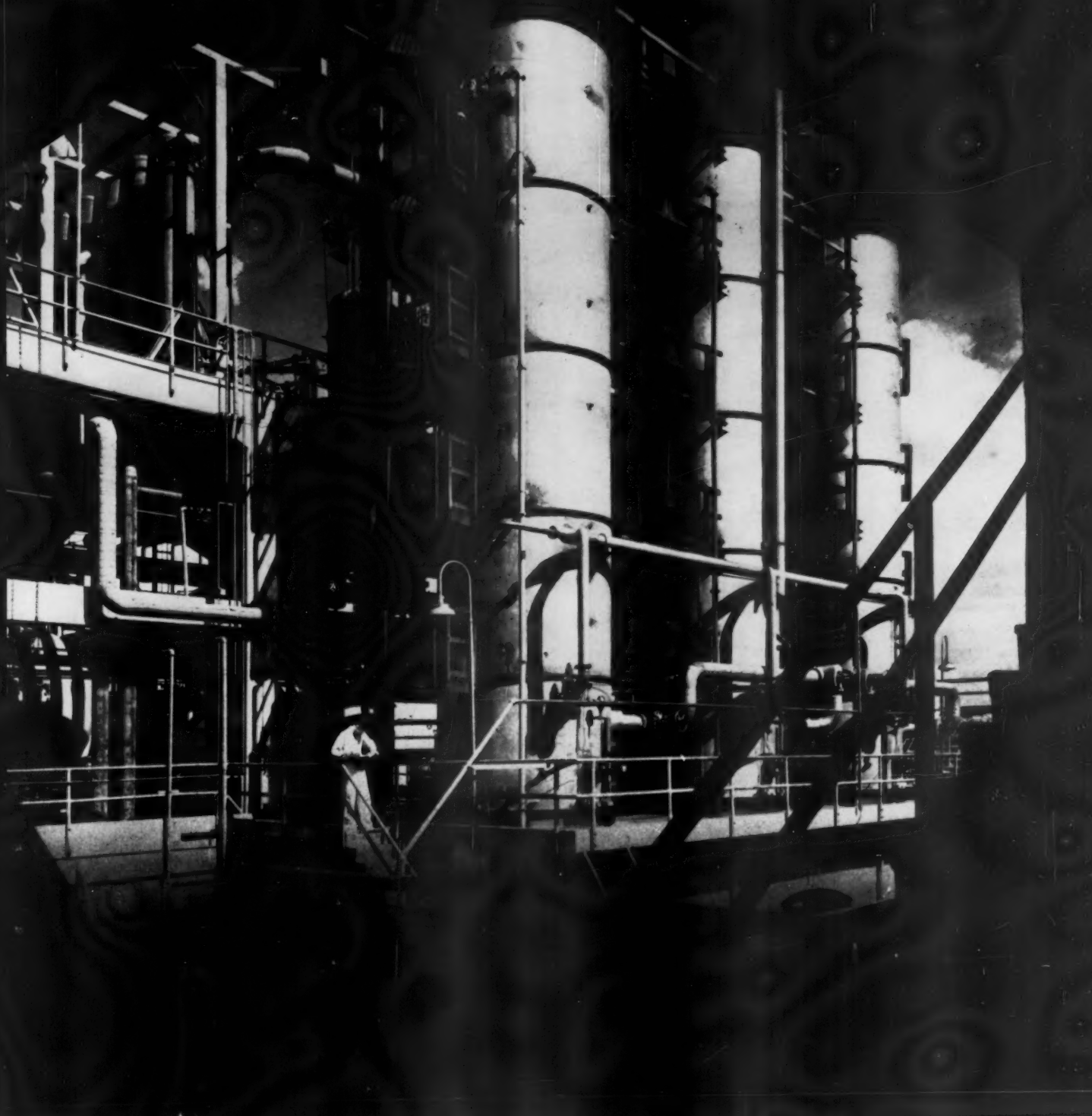
Phenolic Resins for rubber molding stocks, solvent-type adhesives, synthetic rubber latices

DUREZ®

PHENOLIC RESINS

- MOLDING COMPOUNDS
- INDUSTRIAL RESINS
- PROTECTIVE COATING RESINS

United Carbon Company Announces~



United Carbon Company

Announces~

United Carbon Company is proud to announce the acquisition of the Baytown, Texas, synthetic rubber plant through a newly-formed and wholly-owned subsidiary, United Rubber & Chemical Company.

Purchase of the plant from the government was completed on July 15 and marks our entrance into a new field.

It will be our purpose to produce high quality synthetic rubber of the types required by the tire, rubber and other consuming industries both in the United States and abroad.

Sale of Baytown synthetic rubber masterbatches, which are renowned for their uniformity and excellence in quality, will be handled by the sales division of United Carbon Company, Inc.

UNITED CARBON COMPANY, INC.

A subsidiary of United Carbon Company

Charleston 27, West Virginia

NEW YORK AKRON CHICAGO BOSTON MEMPHIS

How to reduce your mixing cycle without sacrificing dispersion or physicals

High-pressure mixing is an improvement of standard mixing procedures used since the introduction of the Banbury® mixer to the rubber industry. Pressures on the material in the mixing chamber are two to three times as high as those normally considered standard.

When mixing master batches, all of the rubber and fillers are fed into the machine at the same time. With high pressure on the floating weight, mixing cycles have been cut — as much as 40%. The resulting short cycle reduces the heat history of the compound. Thus, processing problems caused by polymer gel, cross linkage or heat degradation are avoided.

Dispersion and physicals are equal to, or better than, those obtained with standard procedures. Best results have been on the stiffer compounds, like tire tread, soling and matting, which offer considerable resistance to mixing.

Increased pressures mean high but short horsepower load conditions. Uni-drives are generally necessary, and the Banbury itself has been redesigned to provide a more rugged machine for this severe service.

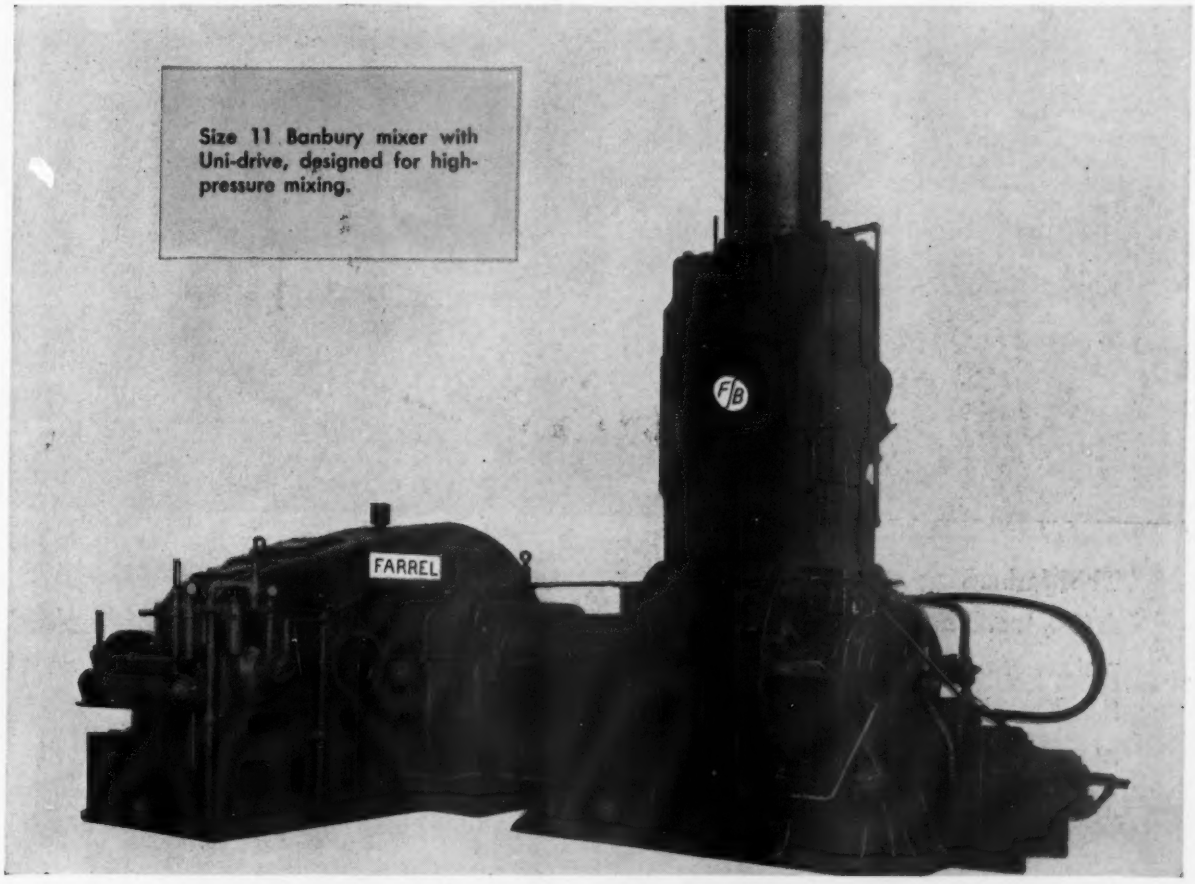
This and other applications of the Banbury mixer are detailed in Bulletin No. 198. You may have a copy, without obligation.

FARREL-BIRMINGHAM COMPANY, INC.
ANSONIA, CONNECTICUT

Plants: Ansonia and Derby, Conn., Buffalo and Rochester, N. Y.

Sales Offices: Ansonia, Buffalo, New York, Akron, Chicago, Fayetteville (N. C.), Los Angeles, Houston

FB-1004



Size 11 Banbury mixer with Uni-drive, designed for high-pressure mixing.

F-B® PRODUCTION UNITS

Banbury Mixers • Plasticators • Pelletizers • Extruders • Calenders • Mixing, Grinding, Warming and Sheeting Mills • Refiners • Crackers • Washers • Hose Machines • Bale Cutters • Hydraulic Presses and Other Equipment for Processing Rubber & Plastic Materials.

Farrel-Birmingham®

Merck Opens Pioneer Rubber Laboratory

The Marine Magnesium Division of Merck & Co., Inc. is happy to announce the completion of new research facilities at South San Francisco in recognition of the ever-growing importance of magnesium compounds in rubber technology.

The new facilities include completely equipped rubber and chemical laboratories for developing and pilot testing of new and improved magnesium compounds. It is our belief that these new research laboratories will enable Marine Magnesium to serve better our many loyal customers in the rubber industry. We invite you to bring us your technical problems relating to the use of magnesium products.

MERCK & CO., INC.

Marine Magnesium Division

RAHWAY, NEW JERSEY • SOUTH SAN FRANCISCO, CALIFORNIA

MAGNESIUM PRODUCTS

In July 1952, Cabot introduced the first of the all-decyl plasticizers

Cabflex® DDP

di-decyl phthalate

Cabflex® DDA

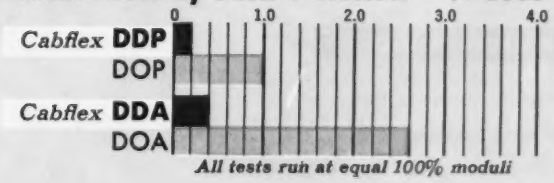
di-decyl adipate

First in Quality Then . . . First in Quality Now . . .

Whatever your primary concern—low soapy water extraction, viscosity, volatility, low temperature properties or just keeping costs down, call Cabot. Remember that Godfrey L. Cabot, Inc. has been in the chemicals manufacturing business since 1882 . . . that the Cabot symbol continues to be your guarantee of best quality plasticizers and company service. You can depend upon Cabot "Cabflex" plasticizers.

Just for example, see how Cabflex DDP and Cabflex DDA can replace DOP and DOA to advantage where extraction by soapy water is the consideration.

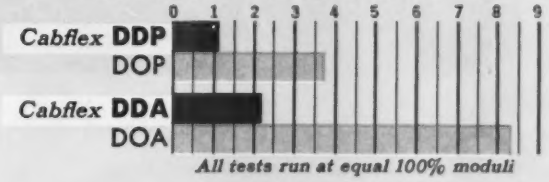
EXTRACTION by SOAPY WATER — % LOSS



All tests run at equal 100% moduli

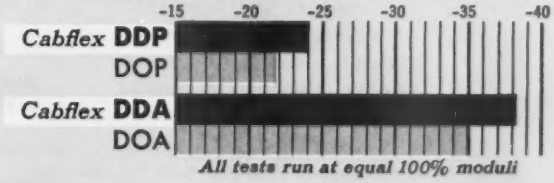
And Cabflex DDP and Cabflex DDA are superior when other properties are compared . . .

VOLATILITY — % LOSS @ 90°C.



All tests run at equal 100% moduli

CLASH and BERG — T_f — °C.



All tests run at equal 100% moduli

For further technical information and samples address

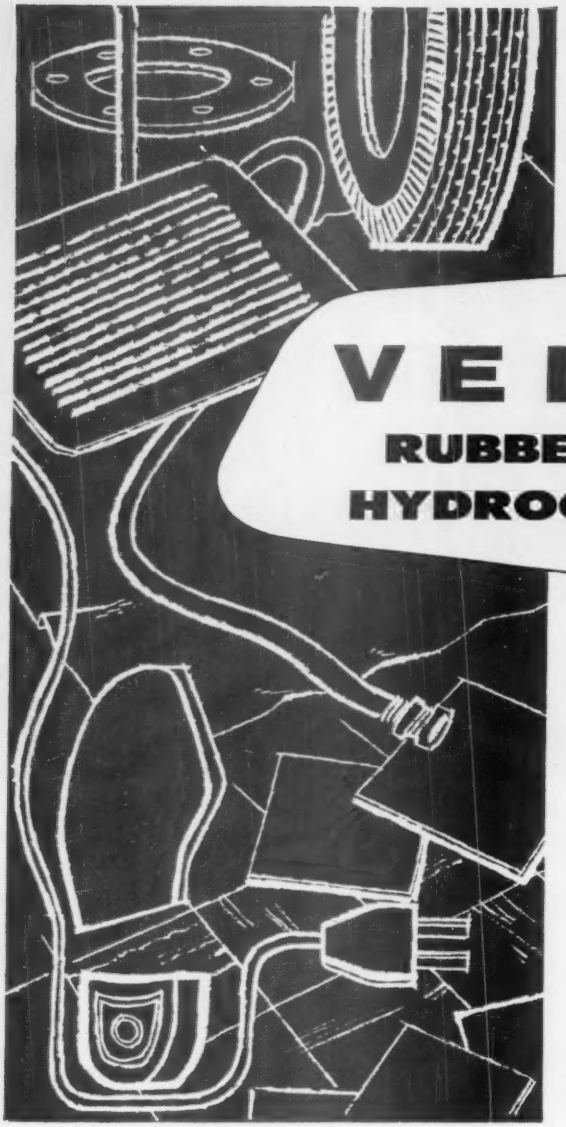
CABOT PLASTICS CHEMICALS DIVISION

GODFREY L. CABOT, INC. 77 Franklin St., Boston 10, Mass.

CABFLEX®Di-OP (di-iso-octyl phthalate)
CABFLEX®DOP (di-2-ethylhexyl phthalate)
CABFLEX®ODP (iso-octyl decyl phthalate)
CABFLEX®DDP (di-decyl phthalate)

CABFLEX Di-OA®(di-iso-octyl adipate)
CABFLEX®DOA (di-2-ethylhexyl adipate)
CABFLEX®ODA (iso-octyl decyl adipate)
CABFLEX®DDA (di-decyl adipate)

CABFLEX®Di-OZ (di-iso-octyl azelate)
CABFLEX Di-BA®(di-iso-butyl adipate)
CABFLEX®TCP (tricresyl phosphate)
CABOL®100 (hydrocarbon oil plasticizer)



For Rubber Compounding...

VELSICOL

RUBBER PROCESSING HYDROCARBON RESINS

Available in Varied Melting Point Ranges

- Compatible with natural and synthetic rubbers.
- Effective plasticizers and softeners.
- Improve milling, calendering and tubing characteristics.
- Provide excellent physical properties.
- Ideal dispersing agents for fillers and pigments.
- Possess high electrical resistance properties.

Some Suggested Applications

MECHANICAL GOODS
RUBBER SOLES AND HEELS
RUBBER FLOOR TILING
TUBULAR COMPOUNDS
MOLDED RUBBER PRODUCTS
ELECTRICAL INSULATION COMPOUNDS
RUBBER ADHESIVES AND CEMENTS
RECLAIMED RUBBER SHEETING
GASKETS AND JAR RINGS
COLORED RUBBER STOCKS
HARD RUBBER COMPOUNDS
BATTERY CASES

Write, wire, or phone for complete information on Resins and reclaim oils

RUBBER RECLAIM OILS

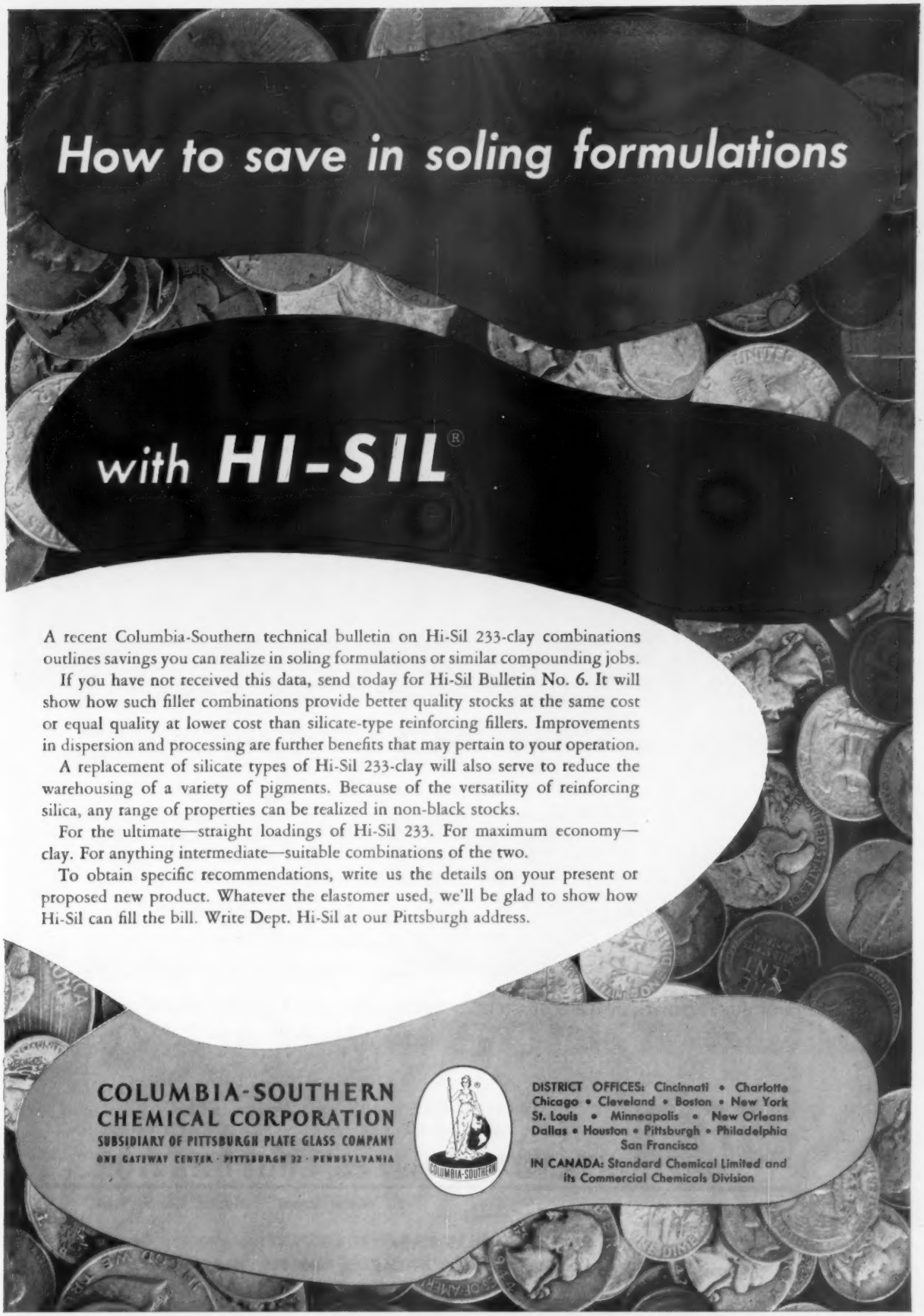
Investigate these effective, economical reclaim oils to obtain high-quality reclaim rubber. Velsicol reclaim oils are suitable for a wide variety of reclaiming processes.

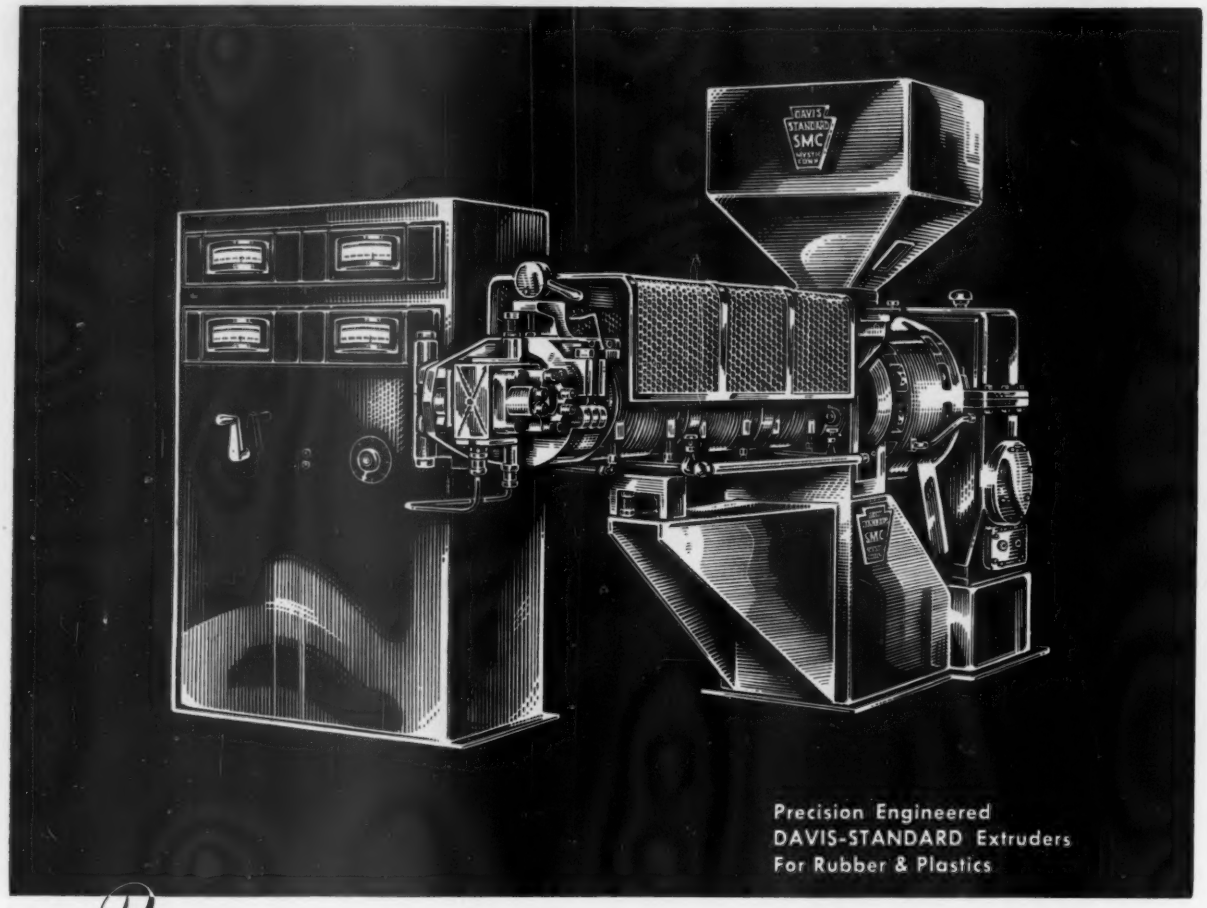
PETROLEUM DERIVED CHEMICALS
VELSICOL
SERVING BASIC INDUSTRIES

VELSICOL CORPORATION

Division of Arvey Corporation

General Offices and Laboratories 330 East Grand Avenue Chicago 11, Illinois


How to save in soling formulations
with HI-SIL®
A recent Columbia-Southern technical bulletin on Hi-Sil 233-clay combinations outlines savings you can realize in soling formulations or similar compounding jobs.
If you have not received this data, send today for Hi-Sil Bulletin No. 6. It will show how such filler combinations provide better quality stocks at the same cost or equal quality at lower cost than silicate-type reinforcing fillers. Improvements in dispersion and processing are further benefits that may pertain to your operation.
A replacement of silicate types of Hi-Sil 233-clay will also serve to reduce the warehousing of a variety of pigments. Because of the versatility of reinforcing silica, any range of properties can be realized in non-black stocks.
For the ultimate—straight loadings of Hi-Sil 233. For maximum economy—clay. For anything intermediate—suitable combinations of the two.
To obtain specific recommendations, write us the details on your present or proposed new product. Whatever the elastomer used, we'll be glad to show how Hi-Sil can fill the bill. Write Dept. Hi-Sil at our Pittsburgh address.
COLUMBIA-SOUTHERN CHEMICAL CORPORATION
SUBSIDIARY OF PITTSBURGH PLATE GLASS COMPANY
ONE GATEWAY CENTER · PITTSBURGH 22 · PENNSYLVANIA
COLUMBIA-SOUTHERN
DISTRICT OFFICES: Cincinnati • Charlotte
Chicago • Cleveland • Boston • New York
St. Louis • Minneapolis • New Orleans
Dallas • Houston • Pittsburgh • Philadelphia
San Francisco
IN CANADA: Standard Chemical Limited and its Commercial Chemicals Division



Unmatched Performance and Durability

IN every field of endeavor, there invariably emerges a champion, an elite, to serve as a standard by which the efforts of the rest may be judged. Whether in a man or a machine, the aura of quality, mark of the aristocrat, is unmistakable.

For those who want their own products to excel, for those who seek the finest extruding machine available, for those who understand the ultimate economy in buying the best, the answer is Davis-Standard, symbol of character and achievement.

DS

DAVIS-STANDARD SALES CORPORATION

22 Water Street Mystic, Connecticut

Sole selling agents for

THE STANDARD MACHINERY COMPANY

World's Largest Manufacturers of Custom-Built Extruding Machines

Easy does it with **SOLKA-FLOC!**

If you manufacture floor tile, rubber soles, or any other rubber product, you can do it faster and easier with SOLKA-FLOC.

Reduced blistering and nerve . . . better dispersion . . . controlled shrinkage . . . high dimensional stability . . . sharper designs . . . harder, smoother surfaces — SOLKA-FLOC works many different ways to give you a better finished product.

A finely-divided wood cellulose, SOLKA-FLOC will speed up your production, improve your product, increase your profits.

For samples and careful consideration of your specific processing problems, write Dept. FG-8, our Boston office, and one of our representatives will call on you.

BROWN COMPANY, Berlin, New Hampshire

General Sales Office:
150 Causeway Street, Boston 14, Mass.

SOLKA PULPS • SOLKA-FLOC • NIBROC PAPERS
NIBROC TOWELS • NIBROC KOWTOWLS • NIBROC
TOILET TISSUE • BERMICO SEWER PIPE AND
CONDUIT • ONCO INSOLES • CHEMICALS

From friction tape to conveyor belts...

FABRICS FOR EVERY PURPOSE

Imagine a vast array of fabric sample "swatches" spread over the product out-put and processing materials of the rubber industry and you have a practical idea of the range of fabric constructions available from Wellington Sears.

You'd have to include sturdy cotton and high tenacity rayon belt and hose ducks . . . sheetings . . . chafers . . . filament nylon . . . Army ducks spun rayon and nylon fabrics. These and many other cotton, synthetic and combination fabrics in a variety of weights and widths —all would be represented.

Of course, what you won't see is the variety of fabrics not yet in existence—those we will develop for specific rubber-and-fabric problems of our customers. If you have such a problem, why not let Wellington Sears help you find the answer?

Write us for illustrated booklet "Modern Textiles for Industry."

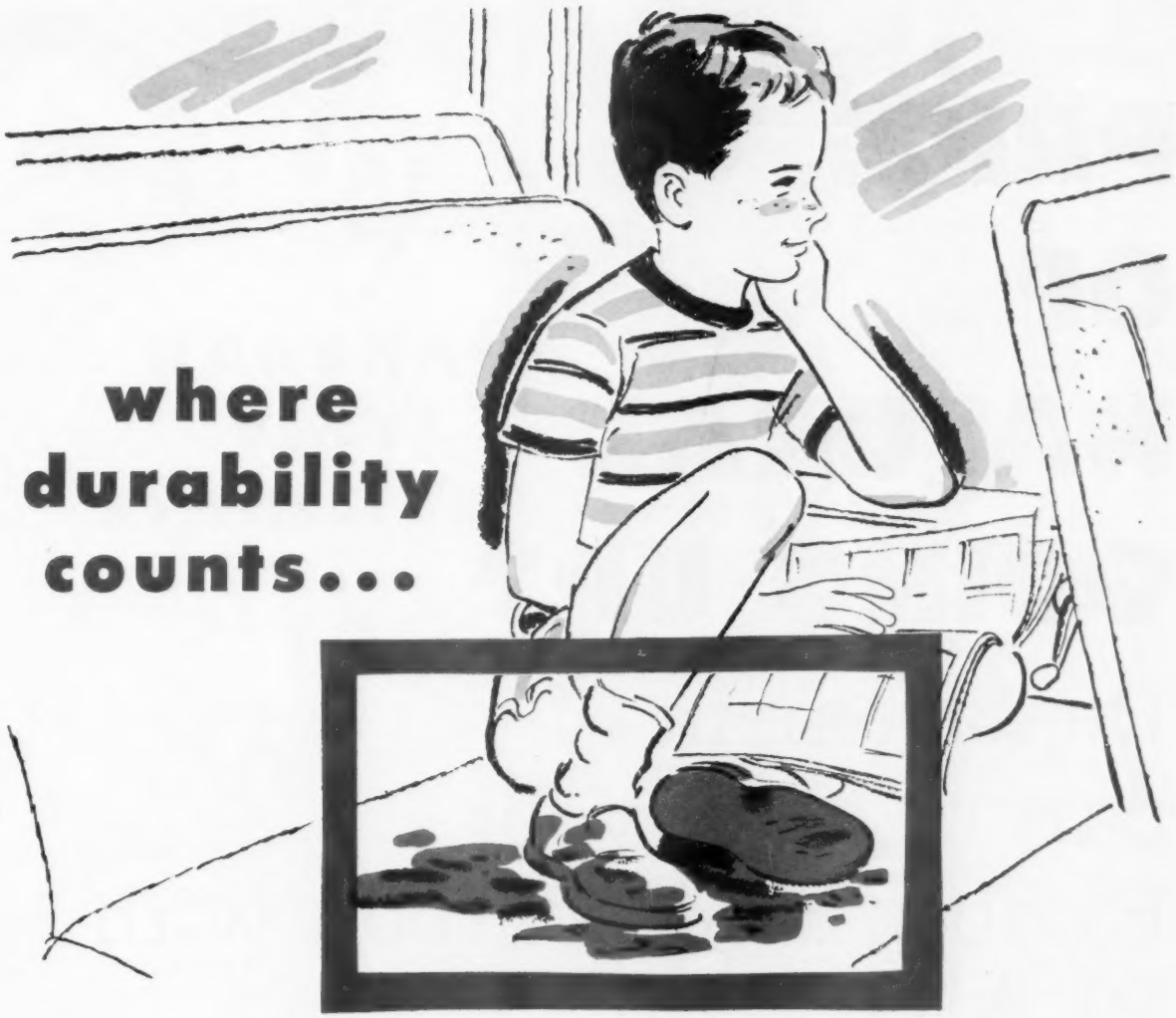
Wellington Sears

A Subsidiary of West Point Manufacturing Company

FIRST In Fabrics For Industry

For Mechanical Goods, Coated Materials, Tires, Footwear and Other Rubber Products

Wellington Sears Co., 65 Worth St., New York 13, N. Y. • Atlanta • Boston • Chicago • Dallas • Detroit • Los Angeles • Philadelphia • San Francisco • St. Louis



where durability counts...

SPECIFY EMERY PLASTOLEIN 9720

...and give your plastics "lasting power"—greater sales appeal!

Where your plastic must stand up to the constant wear of boys' shoes on bus seats... or the cold, rain and sun on auto upholstery... or the eroding elements of the weather on lawn furniture... Emery Plastolein 9720 will give it outstanding durability, weatherability, resistance to wear, and "wipe-off." And since it is the lowest priced polymeric plasticizer available, you get these benefits at lowest cost.

A polyester type compound, this unusually stable plasticizer was compounded specifically to provide durability in heavy-gauge vinyl sheeting. It provides unusually low volatility, high resistance to oil and water extraction, excellent stability to heat and light, and high resistance to migration. Moreover, it is easier to handle, more readily pumped and shipped in bulk than other common polymeric plasticizers.

These characteristics can be important to you. That's why it will pay you to evaluate Plastolein 9720 in your formulation.

Write today to Dept. U-8 for descriptive booklet or for evaluation samples.

Emery

Fatty Acids & Derivatives
Plastolein Plasticizers
Twitchell Oils, Emulsifiers

Emery Industries, Inc., Carew Tower, Cincinnati 2, Ohio

New York • Philadelphia • Lowell, Mass. • Chicago • San Francisco • Cleveland
Warehouse stocks also in St. Louis, Buffalo, Baltimore and Los Angeles

Export: 2205 Carew Tower, Cincinnati, Ohio

PRICE OF NATURAL GOING UP?

Replacement of part or all of your Rubber Hydrocarbon with PLANET, natural tube reclaim, should be your answer...

We will be glad to send you samples and prices.
Write us today.

Pequanoc Rubber Co.

MANUFACTURERS OF RECLAIMED RUBBER

MAIN SALES OFFICE and FACTORY: BUTLER, N. J.

HEAT V LIGHT

HARSHAW VINYL STABILIZERS

for the vinyl plastic and coating industries

Important additives for processing and stabilizing clear and opaque vinyls—

CALENDERED FILMS AND SHEETS • EXTRUSIONS
RIGIDS AND FLEXIBLE
PLASTISOLS • ORGANOSOLS • COATINGS

CADMIUM 2-V-4

Leading heat and light stabilizer for clear or opaque stock, an organic liquid complex containing no disadvantageous soapy component. Unequalled for stabilizing against effects of sunlight or outdoor aging.

BARIUM-CADMIUM 128-V-5

Leading combination of coprecipitated laurates for outstanding performance, where lubricating advantages are required. Generally 30% more effective than common barium-cadmium laurates.

Write for a Vinyl Stabilizer Check List that you may use to detail as much as possible your particular requirements.

A practical stabilizing system will be suggested promptly, based on our experience with the various Vinyl Polymers and Copolymers and with the different Plasticizers, for your processing and product end-use requirements.

THE HARSHAW CHEMICAL CO.
CLEVELAND 6, OHIO

Best effects are attained for particular requirements by combining 2-V-4 or 128-V-5 in a stabilizing system with one or more of the following three stabilizers.

BARIUM 1-V-4

Compatible barium compound, minimum effect on viscosity. Permits processing at higher temperatures.

ORGANIC 8-V-1

Chelating agent, more than two times as effective as common organic phosphites. Inactivates harmful by-products to boost stability. Contributes to top clarity

ORGANIC 7-V-2

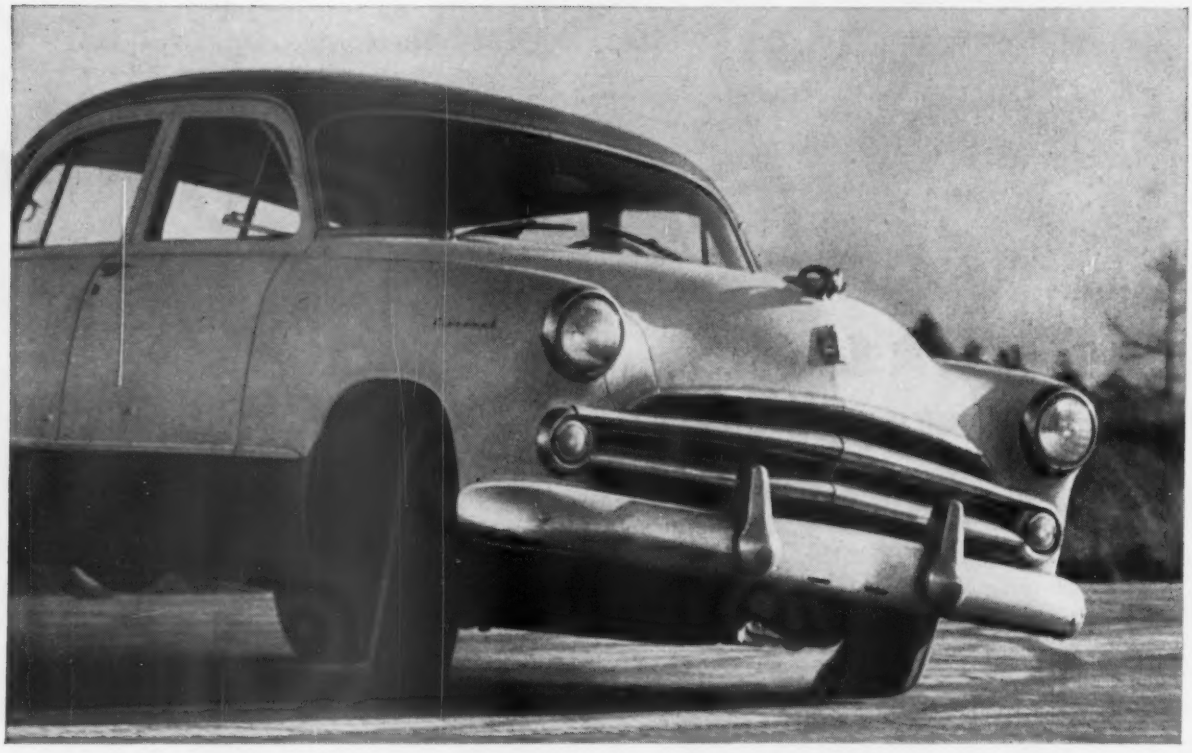
Epoxy assistant, highly effective HCl scrubbing agent, undiluted. Will extend stability for longer processing periods.

CADMIUM 28-V-2

For rigids, opaque to translucent. Stabilizes unplasticized resin efficiently and economically, with minimum effect on physical properties of product.

Stabilizing Systems developed for Harshaw Customers, for special processing and finished product properties, may contain one of the following stabilizers.

ZINC 9-V-1: Organic liquid complex containing no disadvantageous soapy component used in selected formulations.
CADMIUM 2-V-7: For modified solutions and organosols.
CADMIUM 24-V-1: Organic liquid complex for highest attainable clarity, used principally with dispersion resins.
CADMIUM 2-V-400: Modified 2-V-4.
CADMIUM 2-V-8: Selected laurate, used principally with low fusing resins.
BA-CD 12-V-5: Coprecipitated laurate.
CADMIUM 22-V-1: For rigid, clear and opaque stocks.
ORGANIC 7-V-1: Epoxy assistant.
ORGANIC 7-V-4: Epoxy assistant, for rigids.
BARIUM 1-V-3: Dispersible stearate, to contribute lubricity with barium effects.
BARIUM 1-V-6: For asbestos filled tile.
BARIUM 1-V-7: Liquid, for modified plastisols and organosols.
CALCIUM 5-V-1: Dispersible stearate, to contribute with calcium effects.
CALCIUM 5-V-22: Dispersible, low melting stearate to reduce internal friction.
ORGANIC 8-V-100: Modified 8-V-1.



FOR TOUGHER, LONGER MILEAGE TUBELESS TIRES THAT DON'T SQUEAL...USE CIRCOSOL-2XH

Taking the objectionable squeal out of the new tubeless tires—without sacrificing abrasion resistance or toughness—is a problem in tread compounding as well as tread design. Tread design, of course, is somebody else's problem. But Sun's Circosol-2XH will solve your compounding problem.

The unique properties of Sun's Circosol-2XH are due to its scientifically controlled balance of naphthenic and aromatic hydrocarbons. By using Circosol-2XH in your tread stock, you can get a tubeless tire with high abrasion resistance, high flex-crack resistance, long mileage...and most important, it will be quiet running.

The cost of these extra advantages of Circosol-2XH is low. Enough Circosol-2XH for an 8.00 x 15 size, 100 level tire costs less than 2¢ more than the cheapest softener you can possibly buy.

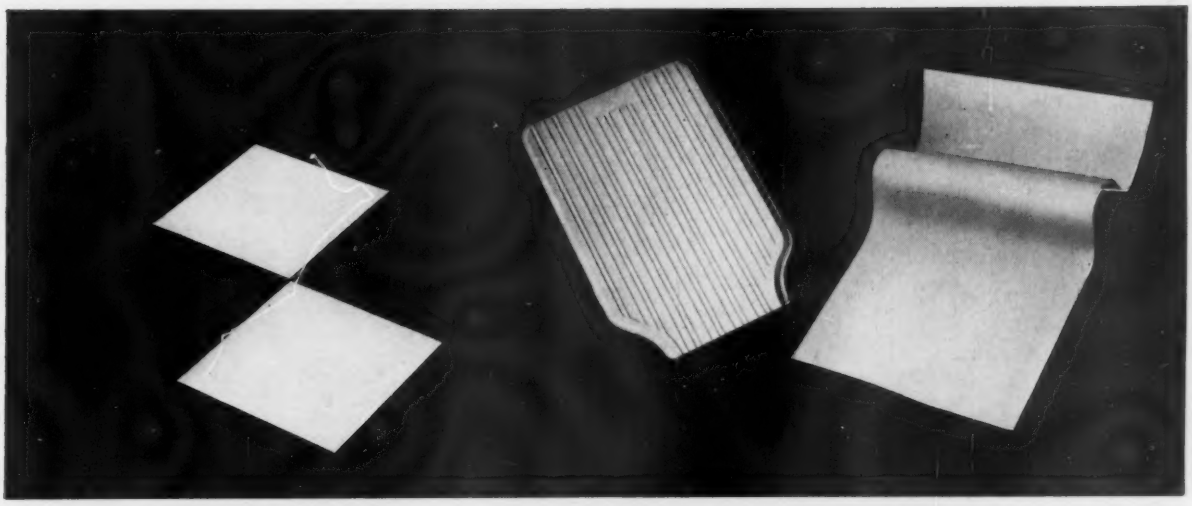
Get the full story on both the advantages *and the new low price* of Circosol-2XH from your Sun representative... or write at once to SUN OIL COMPANY, Philadelphia 3, Pa., Dept. RA-8.

SUNOCO®

INDUSTRIAL PRODUCTS DEPARTMENT

SUN OIL COMPANY Philadelphia 3, Pa.

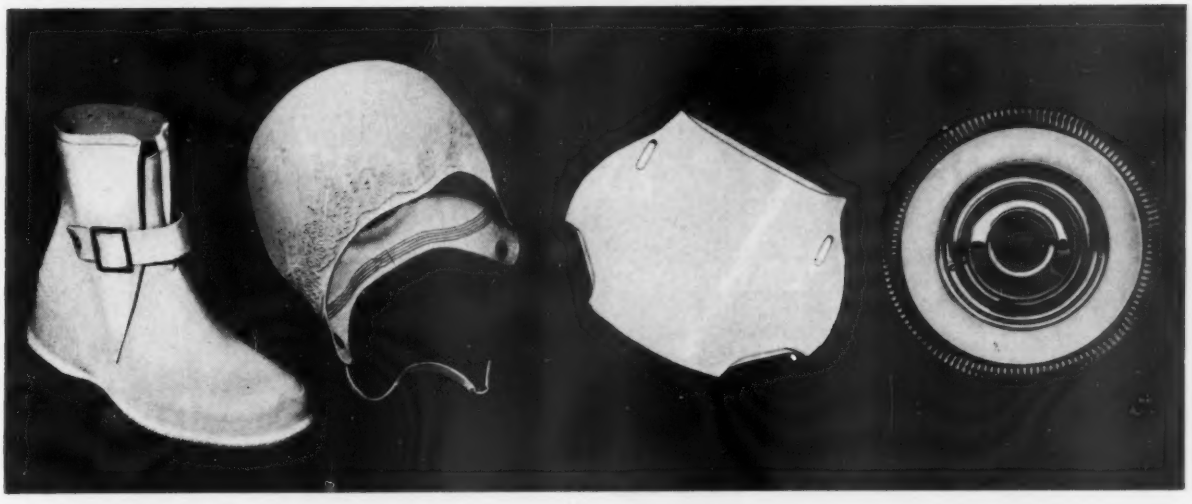
IN CANADA: SUN OIL COMPANY, LTD., TORONTO AND MONTREAL



For Economical, Long-Lasting Whiteness

UNITANE 0-220

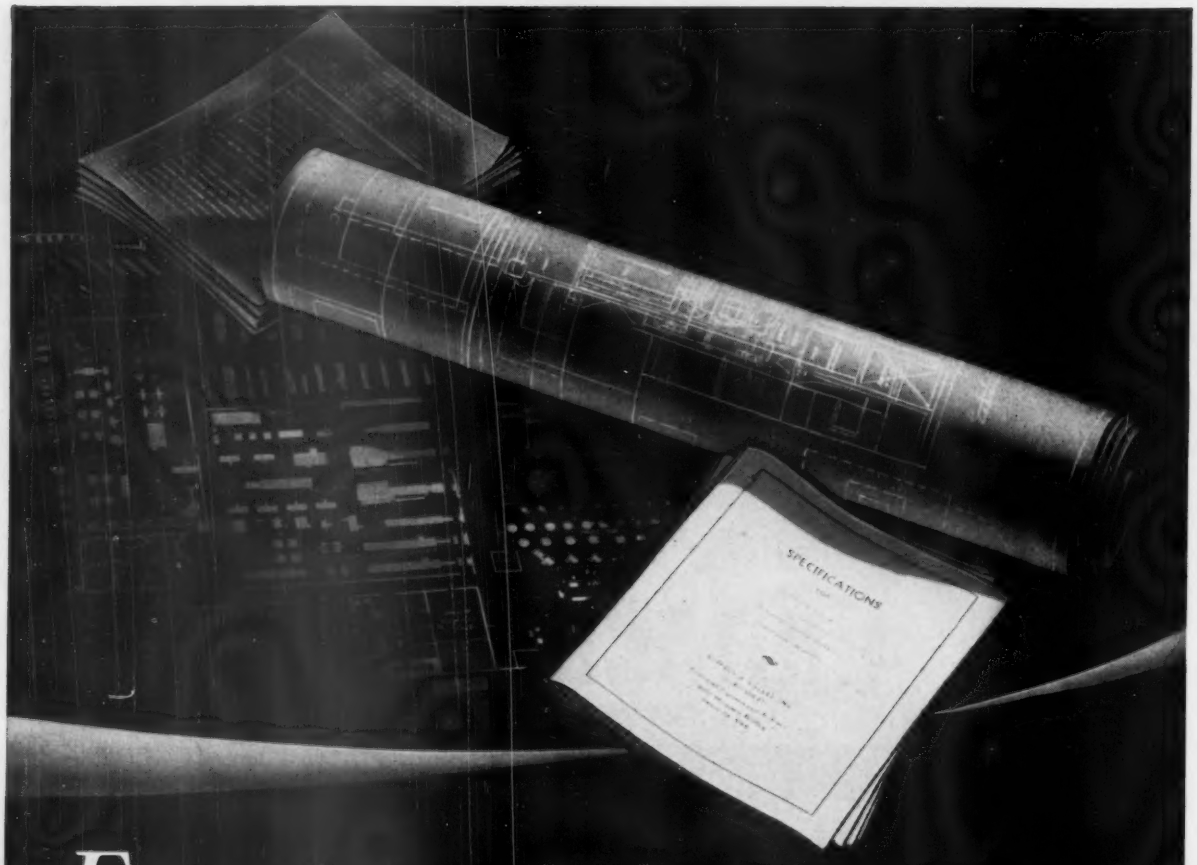
TITANIUM DIOXIDE



Specify UNITANE 0-220 for maximum whiteness with minimum loading in white and tinted stocks. This anatase pigment provides high-quality whiteness and brightness at lowest cost.

Your Cyanamid Pigments representative will gladly give you full information on the wide range of UNITANE pigments available for every purpose.

AMERICAN Cyanamid COMPANY
PIGMENTS DIVISION
30 ROCKEFELLER PLAZA, NEW YORK 20, N. Y.
BRANCH OFFICES AND WAREHOUSES IN PRINCIPAL CITIES

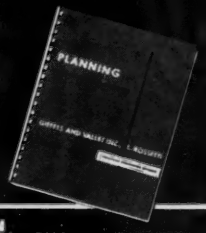


Experience is important

. . . IN PLANNING YOUR AUTOMATED PLANT

AUTOMATION has been engineered into Giffels & Vallet projects for many years. Although it was then not identified as Automation by name, it *did* produce automatic operations of many types. Automatic shakeouts in foundries—automatic stackers in board plants—automatic surge storage between machines—and many other applications throughout industry.

Automation is but one phase of the comprehensive planning and engineering services provided by Giffels & Vallet. Rubber, Plastics, Metalworking and Cement—these are but a few of the widely diversified industries Giffels & Vallet is serving. These services are discussed in a special Planning Brochure, and a copy will be mailed upon request.



Engineers serving Industry for over 30 Years

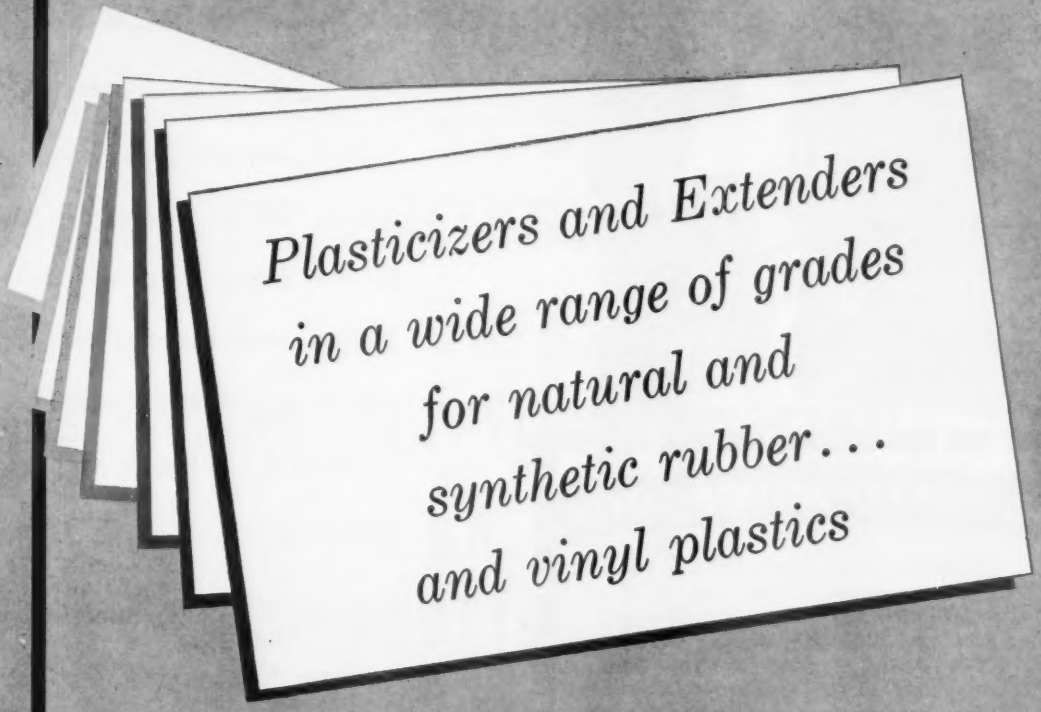
INDUSTRIAL ENGINEERING DIVISION

NEW YORK
CHICAGO
HOUSTON
WINDSOR, ONT.

Giffels & Vallet INC.

DETROIT, MICHIGAN

SHELL DUTREX



Plasticizers and Extenders in a wide range of grades for natural and synthetic rubber... and vinyl plastics

SHELL OIL COMPANY

50 WEST 50th STREET, NEW YORK 20, NEW YORK
100 BUSH STREET, SAN FRANCISCO 6, CALIFORNIA

SHELL

Here it is--

Crude Rubber Bale Cutter

DESIGNED FOR MAXIMUM SAFETY

If you cut crude rubber bales in your plant--regardless of how you do it--it will definitely pay you to find out how the new and improved Holmes Crude Rubber Bale Cutter can save your time ...increase your production...and... decrease your costs. Engineered for top performance--it is also designed to provide the utmost safety for the operator. What does it cost? You'll be surprised at its unusually low cost.

WRITE OR WIRE FOR SPECIFIC DETAILS--regardless of your particular requirements. With 52 years know-how specializing in machinery and molds for the rubber industry--Holmes can help you solve your problems, too, just as they have for so many others. No obligation, of course.

WRITE FOR ILLUSTRATED FOLDER--TODAY

Stanley H. Company

3300 WEST LAKE STREET • CHICAGO 24, ILLINOIS

BUFFALO RECLAIMS

Serving You Better WITH OUR MODERN RECLAIMATOR PLANT

Here you'll find the industry's most modern plant coupled with its most modern process. Reclaims made by our patented, continuous-flow **Reclaimator Process** are available in all Standard Grades . . . powdered, extruded slabs, or sheeted slabs.

The addition of the **Reclaimator Process** to our standard pan and digester methods affords the industry the widest selection of reclaims FOR EVERY PURPOSE.

72 years serving the industry, solely as reclaimers.

U.S. RUBBER RECLAIMING COMPANY, INC

BOX 365 BUFFALO 5, NEW YORK

Sharples Dispersed Ultra Accelerators for Latex

THE 7 SERIES

50% WATER DISPERSIONS

SA 57-7
ZINC DIMETHYLDITHIOCARBAMATE

SA 67-7
ZINC DIETHYLDITHIOCARBAMATE

SA 77-7
ZINC DIBUTYLDITHIOCARBAMATE

For most applications suitable for direct addition to the latex without additional treatment. Technical information on these 50% Water Dispersions—and samples, if desired—will be sent on request.

SHARPLES CHEMICALS Division
PENNSYLVANIA SALT MANUFACTURING COMPANY
500 Fifth Ave., New York • 80 E. Jackson Boulevard, Chicago • 106 S. Main St., Akron
Executive Office: Philadelphia, Pa.
Martin, Hoyt & Milne Inc., San Francisco • Los Angeles • Seattle • Portland
Shawinigan Chemicals, Ltd.: Montreal • Toronto
Airco Company International, New York

Pennsalt Chemicals

LOW COST Oil Furnace Carbon Black

CABOT Sterling® V GPF*

V for Versatile and Value

RECOMMENDED TO REPLACE SRF AND HMF BLACKS IN

- *Molded Goods, Hose, Belts, Footwear and Cable Jacket Compounds...*
- *Undertread, Sidewall and Carcass Compounds...*

Tested and Proved in More Than 600,000 Tire Miles of Road Tests...

Sterling® V *gives*

Smooth Extrusion
Superior Processing
Good Reinforcement
Low in Cost, High in Value

GODFREY L. CABOT, INC.
BOSTON 10, MASSACHUSETTS

CABOT

*GENERAL PURPOSE FURNACE BLACK

Run SERVEL WATER CHILLERS on waste heat or waste steam!

Here's how to provide low-cost chilled water for your cooling needs

If you're letting waste heat or steam "go up in smoke," you're losing your cheapest source of chilled water.

Servel WATER CHILLERS utilize these waste products from any source to provide chilled water at *controlled* temperatures . . . chilled water you can use for industrial cooling, process cooling, or air conditioning in your plant.

These efficient Servel cooling units have no moving parts. They give you vibration-free operation and low upkeep. That's because Servel water chillers use an exclusive, modern absorption principle. No heavy-duty wiring required.

What's more, Servel water chillers are compact in size . . . and have low floor loading. That means you can put single or multiple installations in the most advantageous locations . . . on the roof, in the basement, or on any floor in between . . . even in a separate building.

Check these advantages against your cooling needs. Your Servel dealer will gladly supply details and engineering help. Or mail coupon today.

SERVEL WATER CHILLERS serve a wide variety of industries

1. **Beverage Industry**
2. **Metal Plating Industry**
3. **Aluminum Industry**
4. **Steel Industry**
5. **Chemical Industry**
6. **Food Industry**
7. **Petroleum Industry**
8. **Dairy Industry**
9. **Printing Industry**
10. **Rubber Industry**
11. **Textile Industry**
12. **Wax Industry**

Send coupon for details, now!

Servel

the name to watch for great advances in

AIR CONDITIONING ✓ REFRIGERATION

SERVEL, INC., Dept. RA-85, Evansville 20, Indiana

Please send me specifications and full information on Servel water chillers.

Name_____

Firm_____

Address_____

City_____ Zone_____

County_____ State_____

WHAT! YOU'VE LOST ANOTHER CAR OF SOLVENT?
I'M TIRED OF NEVER KNOWING WHEN OUR SOLVENT SHIPMENTS WILL ARRIVE!
WHY DON'T WE SWITCH TO SKELLYSOLVE? I'VE HEARD A LOT ABOUT THEIR SKELLYSURE DELIVERY SYSTEM.

The Skellysolve Man Explains The Skellysure System!

1) Your order is phoned directly to the Skellysolve plant.
2) Nine times out of ten your car is shipped the next day.
3) Car number and shipping information are sent to you promptly.
4) Skellysolve is quality-checked during production and before it is shipped.
5) Technical service—backed by 25 years of Skelly development—is available to you.

LATER
SWITCHING TO SKELLYSOLVE STOPPED OUR DELIVERY TROUBLES!
THE BOYS IN THE PLANT GO FOR SKELLYSOLVE QUALITY, TOO!
Skellysolve
SKELLY OIL CO.

Many companies in your industry depend on Skellysolve for exacting quality, prompt shipment, and technical service. Get more complete facts today!

Les Weber
Manager Skellysolve Sales

SKELLY **Skellysolve**

SKELLY OIL COMPANY
Industrial Division
605 West 47th Street, Kansas City 41, Mo.

Skellysolve for Rubber and Related Industries

Applications

SKELLYSOLVE-B. For making quick-setting cements for the shoe, tape, container, tire and other industries. Quick-drying, with no foreign taste or odor in dried compound.

SKELLYSOLVE-C. For making quick-setting cements with a somewhat slower drying rate than those compounded with Skellysolve-B.

SKELLYSOLVE-D. For cements and variety of manufacturing operations. Good odor. Quick drying. Minimum of heavy, greasy compounds.

SKELLYSOLVE-H. For general use in manufacturing operations and cements, where faster evaporation rate than that of Skellysolve-D is desired.

SKELLYSOLVE-E. For use wherever a relatively slow drying solvent is desired.

SKELLYSOLVE-R. For general use in tire building and a variety of other manufacturing operations and cements. Reduces evaporation losses. Medium quick final dry. Lessens bloating and skinning tendency.

LINERETTE

for faster Separation on Making Lines

Separation of stock and Linerette paper on the making lines is an easy, efficient operation. Linerette, a specially processed separating paper, prevents adhesion, insures faster operation on the making lines.

And Linerette features are important in other phases of processing, too. Frictioned stocks may be fed from the calender right into Linerette. It leaves no objectionable cloth marks and contains no oil or wax. When used in die-cutting operations, clippings may be worked away with regular scrap.

Linerette supplies additional savings when used in shipping lightweight stocks—there is no need to return a fabric liner. Where cleanliness is a vital factor, Linerette serves as a low cost lining for trays and containers.

GET THE FULL STORY ON CLIMCO PROCESSING

Illustrated booklet tells about Climco Liners and Linerette separating paper. Tells how to get better service from liners. Write for your copy now.

Linerette is supplied in any width up to and including 54″, in rolls of 9″, 11 1/2″, 13″, and 15″ diameters; put up on 3″ i.d. cores. The yield is approximately six square yards to the pound. A 9″ roll contains 375 linear yards and a 15″ diameter about 1150 linear yards.

SAMPLES SENT ON REQUEST—*simply specify width desired.*

THE CLEVELAND LINER & MFG. CO.
5508 Maurice Ave. • Cleveland 27, Ohio, U.S.A.
Cable Address: "BLUELINER"

LINERETTE
INTERLEAVING PAPER

CLIMCO
THE CLEVELAND LINER & MFG. CO.
CLEVELAND OHIO, U.S.A.

MADE BY THE MANUFACTURERS OF *CLIMCO* PROCESSED LINERS

Available about Oct. 1

★

Commercial Production of Celanese* Fortisan*-36

SUPER-STRONG HEAVY DUTY RAYON

Fortisan-36 is a high-denier, heavy duty saponified acetate rayon—an even stronger version of famous Fortisan, designed primarily for industrial application.

Pilot plant quantities are now undergoing evaluation in mechanical rubber goods and other fields. Limited poundage is available for further experimentation.

Facilities for expanded production of Celanese Fortisan-36 are nearing completion. Commercial quantities, including 800 denier—800 filament and 1600 denier—1600 filament yarns will be available for delivery about October 1.

Extensive research and development work, both by Celanese and many large industrial users, has established Fortisan-36 as a singularly useful industrial yarn.

Fortisan-36's very high tensile strength, extremely high modulus and excellent dimensional stability indicate that it will have an important place in the making of

V-Belts • Conveyor Belts • Fire Hose
Plastic Laminates • Filters
Paper Reinforcements
and many other applications

If you have a stake in any of these areas—or are concerned with any industrial application where high strength yarns are important—we'd like to work with you on the application of Fortisan-36 to your products.

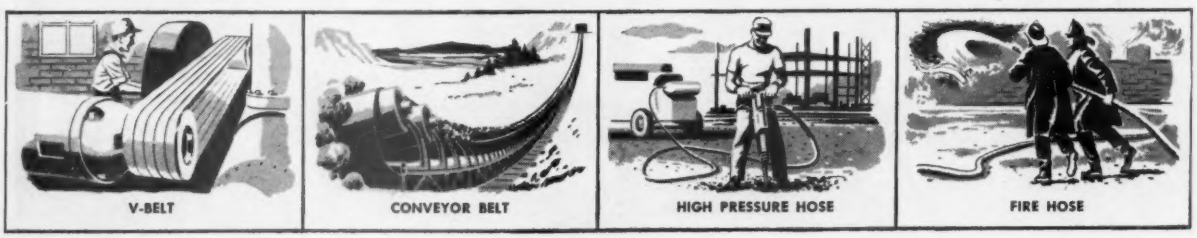
Our technical men have a wealth of data which may indicate some new approaches to your problems.

For further information, write Celanese, Industrial Sales Department, Textile Division, Charlotte, North Carolina.

Celanese* Fibers for Industry

FORTISAN* • FORTISAN*-36 • ARNEL† • ACETATE • VISCOSE-RAYON

*Reg. U.S. Pat. Off. †Trademark



Give your products long life -

USE

HYPALON®

(CHEMICAL RUBBER)

for excellent resistance to high-temperature exposure

Properly compounded stocks retain flexibility in the range of 250° to 350° F.

HYPALON provides a method of obtaining improved heat resistance in belt covers, steam-hose covers, spark-plug boots, V-belts, industrial rolls, ignition wire and miscellaneous mechanical goods.

See Elastomers Division Report:

BL-262 "Neoprene and HYPALON for High-Temperature Service"

BL-267 "Molded Products of HYPALON for High-Temperature Service"

E. I. du Pont de Nemours & Co. (Inc.)
Elastomers Division

DISTRICT OFFICES:

Akron 8, Ohio, 40 E. Buchtel Ave. ..... POrtage 2-8461
Atlanta, Ga., 1261 Spring St., N. W. ..... EMerson 5391
Boston 10, Mass., 140 Federal St. ..... HAncock 6-1711
Chicago 3, Ill., 7 South Dearborn St. ..... ANdover 3-7000
Detroit 35, Mich., 13000 West 7-Mile Rd. ..... UNiversity 4-1963
Houston 25, Texas, 1100 E. Holcombe Blvd. ..... JAckson 8-1432
Los Angeles 58, Calif., 2930 E. 44th St. ..... LOgan 5-6464
New York 13, N. Y., 40 Worth St. ..... COrtlandt 7-3966
Wilmington 98, Del., 1007 Market St. ..... Wilm. 4-5121

Du Pont
HYPALON®

DUPONT
REG. U. S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

one woman tells another
how white and bright
her rainwear is, when it's
made with TITANOX®!!!
if you make white goods
like those in these pictures,
come to TITANOX
for the best in TiO_2.
TITANOX white pigments
are compatible with
all types of rubber and plastics!
why don't you try them?

TITANIUM PIGMENT CORPORATION • 111 BROADWAY, N.Y. 6, N.Y.

Subsidiary of National Lead Company

Atlanta • Boston • Chicago • Cleveland • Houston • Los Angeles • Philadelphia • Pittsburgh • Portland • San Francisco

In Canada: Canadian Titanium Pigments Limited—Montreal • Toronto

3317

SOCTEX* TYPES CA and CD

TERRES ROUGES*

TYPE RA

Concentrated Hevea Latex

Special Purpose Hevea Rubber

TENSOSHEET*
TENSOCREPE*
AIRDRIRUB*

Latex and Rubber, Inc.

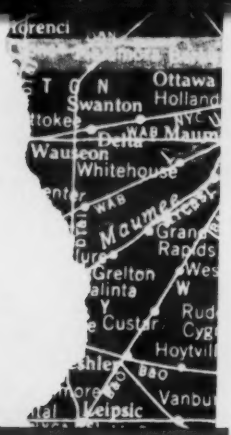
1075 HULL STREET, BALTIMORE 30, MARYLAND

*Registered Trade Mark, U.S.

Telephone: PLaza 2-7602

TWX BA-150

Cable Address: RUBBERBANK



SERVING THE HEART OF THE

WITCO-CONTINENTAL

announces the opening of a new sales office and technical service laboratory at

213 West Bowery Street

AKRON OHIO

Modern and complete technical service facilities, together with our Akron and Cleveland sales offices, have been established at this new address. In this location, Witco-Continental aims to attain new "highs" in the promptness and efficiency of our technical service for the rubber industry.

For Witco-Continental service in the Akron area, call POrtage 2-8881. In Cleveland continue to call CHerry 1-0583. Elsewhere, contact your nearest Witco sales office.

WITCO CHEMICAL COMPANY
CONTINENTAL CARBON COMPANY

122 East 42nd Street, New York 17, N. Y.

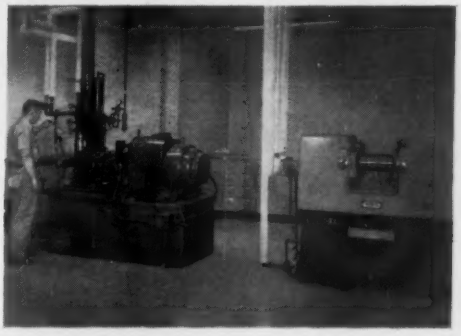
WITCO

35 Years of Growth

Chicago • Boston • Akron-Cleveland • Atlanta • Houston • Amarillo
Los Angeles • San Francisco • London and Manchester, England

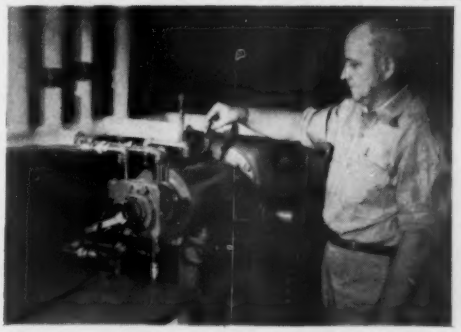
RUBBER INDUSTRY

Entrance to Witco-Continental's office and technical service laboratory at Akron, Ohio.



Inside Akron laboratory. Banbury mixer compounds rubber formulations. Rubber mill at right.

Rebound machine tests resiliency of rubber compounds containing Continental Carbon Blacks.



Tuber determines extrusion characteristics and provides samples for subsequent testing.

QUICK TRIM FLASHING

for as little as 1/4 your present cost!

with Western's RMH Machine
The machine of 1000 Uses

Dies cut on a replaceable hardened steel plate. Foot control speeds operation. Simple, positive pressure adjustment. Positive safety devices on machine. ½ H.P. motor.

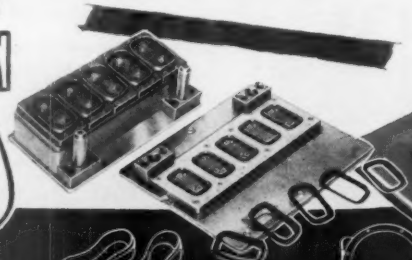
Cuts, punches and trims flashing in one swift operation!

CUTS PARTS FROM SHEET STOCK SEND US A SAMPLE of parts to be cut or flash trimmed for our recommendations.

Send for our illustrated catalog

WE SPECIALIZE IN

DIES



WESTERN SUPPLIES CO., 2920 CASS AVE., SAINT LOUIS 6, MO.

SULPHUR IS PROCESSED BY STAUFFER FOR THE RUBBER INDUSTRY

Offering special sulphurs to the rubber industry for over three decades, the Stauffer Chemical Company has developed a complete line to meet all demands. Carefully screened Stauffer sulphurs are available in a wide variety of mesh sizes for every rubber recipe. In addition, there are surface conditioned grades designed for special blending problems.

Tire Brand is a commercial powdered sulphur for general vulcanization purposes.

Tube Brand is a refined sulphur with a 99.8% purity to meet special or more exacting requirements.

Special Flowers of Sulphur is a 30% insoluble sublimed sulphur, economical where a degree of rubber insolubility is required.

Crystex is a unique allotrope of sulphur, 85% insoluble in rubber or rubber solvents. It is used to prevent pre-vulcanization sulphur 'bloom'.

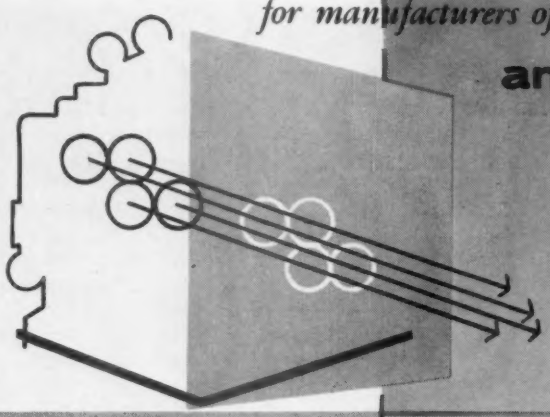
Rubber tracks for Army tanks

380 MADISON AVENUE, NEW YORK 17, N. Y.

221 N. LaSalle Street, Chicago 1, Illinois • 636 California Street, San Francisco 8, California
326 S. Main Street, Akron 8, Ohio • 824 Wilshire Boulevard, Los Angeles 14, Calif.
8901 Hempstead Road, Houston 8, Texas • North Portland, Ore.

STAUFFER Stauffer CHEMICALS SINCE 1885 CHEMICALS

for manufacturers of vinyls...



another great advantage of

STABILIZER MARK M

minimizes or eliminates roll plate-out

The addition of Stabilizer Mark M to your basic vinyl formulation ends your problems of excessive roll build-up during calendering. Mark M helps maintain gauge uniformity, improves printing qualities, and facilitates heat sealing.

In addition, Stabilizer Mark M provides outstanding heat and color stability, sparkling clarity, and improved weathering characteristics. It has found ever-increasing application in the manufacture of unsupported vinyl film and sheeting and many other vinyl applications.

Mark M is ideal for use with sensitive organic pigments, retaining the true color during processing.

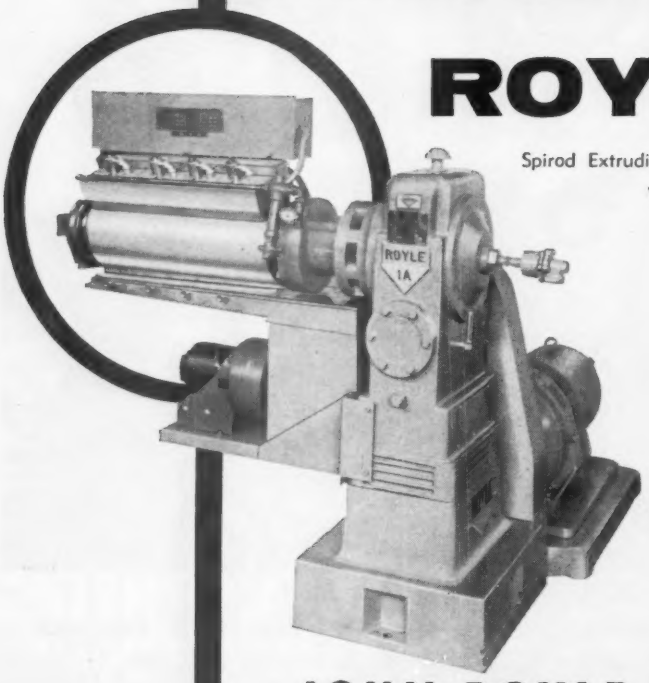
In convenient liquid form, Mark M mixes readily with all vinyl formulations. It is lower in cost than any stabilizer of comparable advantages.

Find out how Mark M can improve your vinyls — write for Technical Bulletin II and a generous working sample.

"PURR-FECTION"

ARGUS CHEMICAL CORPORATION

633 COURT STREET BROOKLYN 31, N. Y.



ROYLE 1A (2½" cylinder bore)

Spirod Extruding Machine with electric heating and high velocity evaporative cooling. An all-purpose extruding machine for processing rubber and plastics. Available in sizes 1⅛" through 12" cylinder bore.

Strainers, Cooling Troughs, Light Wire and Cable Capstans, Motorized Take-ups, Temperature Control Units.

JOHN ROYLE & SONS

ROYLE PATERSON N. J. 1880

PIONEERED THE CONTINUOUS EXTRUSION PROCESS IN

London, England — James Day (Machinery) Ltd. — Hyde Park 2430 - 0456

Home Office — V. M. Hovey J. W. VanRiper — SHerwood 2-8262

Akron, Ohio — J. C. Clinefelter — SWandale 4-5020

Los Angeles, Cal. — H. M. Royal, Inc. — LOgan 3261

PATERSON 3, NEW JERSEY

For fingertip release

DOW CORNING 36 EMULSION

Moe Muscles used to claim that with Dow Corning mold lubricants he could meet the production quota standing on his head. After trying new *fine particle* Dow Corning 36 Emulsion, however, he's willing to go one better.

That's because Dow Corning 36 has an average particle size of less than 0.5 microns or about 1/10 that of previous silicone emulsions. That means it's more resistant to creaming or separation due to heat, cold, centrifuging or high dilution than any other silicone emulsion ever developed. Equally important, in many applications fine particle size also results in an improved, less oily surface finish.

Furthermore, new *fine particle* Dow Corning 36 Emulsion is available at the same low price as the regular Dow Corning mold release emulsions. That adds up to easier release, better appearance and fewer rejects . . . at production costs that are lower than you ever experienced before. For further information and a generous free trial sample, return the coupon TODAY!

first in silicones

DOW CORNING SILICONES

DOW CORNING CORPORATION
MIDLAND MICHIGAN

ATLANTA CHICAGO CLEVELAND DALLAS DETROIT LOS ANGELES NEW YORK WASHINGTON, D.C. (SILVER SPRING, MD.)

CANADA: DOW CORNING SILICONES LTD., TORONTO GREAT BRITAIN: MIDLAND SILICONES LTD., LONDON FRANCE: ST. GOBAIN, PARIS

KILL IT *with a* DOW CORNING SILICONE DEFOAMER

Given a chance, a Dow Corning silicone defoamer almost always gets its man . . . restores productive capacity previously wasted on foam . . . and at very low cost. For example:

- **12 ppm defoam Geon latex**
- **1 ppm defoam neoprene latex**
- **22 ppm defoam soapy latex dip**
- **20 ppm defoam butadiene styrene emulsion**

And you get increased production immediately without installing expensive new equipment. All you have to do in the case of most foamers is add a few parts per million of the water dilutable Antifoam AF Emulsion or, where solvents can be tolerated, a dispersion of Antifoam A. Both of these Dow Corning silicone defoamers are physiologically harmless. Both of them **increase production • reduce processing time • eliminate the waste and fire hazard of boil-overs.**

see for yourself!

mail coupon today for **free sample**

DOW CORNING SILICONES

Dow Corning Corporation
Midland, Mich., Dept. 9208

Please send me free sample of:

☐ Dow Corning 36 Emulsion
☐ Dow Corning Antifoam A Compound
or ☐ Dow Corning Antifoam AF Emulsion

NAME _____

COMPANY _____

ADDRESS _____

CITY _____ ZONE ____ STATE _____

PRESTO PLASTICS GETS UNIFORMITY LIKE THIS WITH TRACERLAB BETA-GAUGE CONTROL

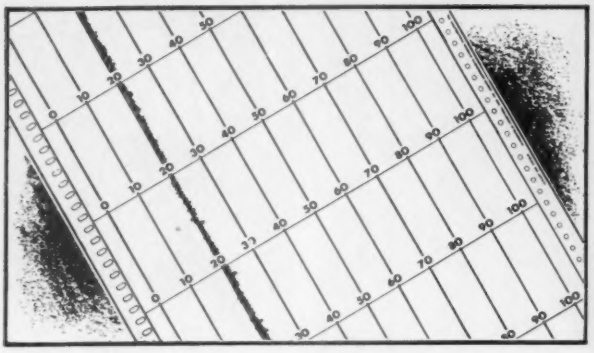


Fig. 2. Pair of Tracerlab Beta Gauges provides continuous quality supervision of plastic sheet leaving calender rolls. Control of thickness, flatness and weight is exceptionally accurate. Rejections due to errors of thickness are down 90%.

Presto Cuts Rejects 90% Gets Higher Quality at Lower Cost with NUCLEAR ENERGY

One of the biggest problems in the manufacture of plastic sheet is maintaining accurate, uniform gauge... proper thickness across the width of the roll and from beginning to end. Adopting Tracerlab Beta Gauging as a means of controlling quality level, Presto Plastics — leading manufacturer of high quality vinyl sheet — has solved this problem with industry's most modern tool: **Nuclear Energy.**

With Tracerlab Beta Gauge equipment, Presto now maintains precise gauge and uniform flatness within plus or minus 2½% on sheet thicknesses that are measured in thousandths of an inch! Rejections due to "off spec" gauging have been cut 90%, and the overall rejection rate from all causes has been halved. Time required to change gauge between runs of different products has been reduced to ⅓ the time formerly consumed by manual methods. Changeover now occupies only 5% of operators' time on the line. In addition, production per shift has increased significantly since it is no longer necessary to stop the machine periodically to check gauge and adjust the rolls.

A comparison of old and new methods shows how these savings are made:

Old Method: Manual Gauging. At the start of a production run the operator had to set the calender rolls approximately, run a sample of material, shut the machine down, then gauge manually across the width of the sheet. He then adjusted the controls, ran another sample and repeated the process until thickness came within tolerance.

At intervals during the run, the operator gauged the edges of the sheet in order to maintain specifications since drift away from standard meant the production of unsalable goods. It was extremely difficult for manual gauging to detect drift away in time for corrections to be applied to the roll of plastic in process.

Programming of production for orders of various sheet widths or thicknesses called for repetition of the start-up procedure, with consequent production delays. Uniformity of product from roll to roll and day to day was difficult to maintain because of the large personal element involved in gauging. Much depended upon the operator's skill and experience. For embossed goods manual gauging was highly unsatisfactory due to the irregular surface.

New Method: Beta Gauging. Two Tracerlab Gauges mounted on the windup tower scan each edge of the sheet continuously (fig. 2). Each unit has a remote indicating meter at the machine control panel for convenience in making operating adjustments. In addition, pen recorders located at a separate station furnish permanent records of quality, (see fig. 3)

To start a production run, the operator merely sets the calender rolls for the desired thickness using the Beta Gauge indicator and starts the machine. As sheet is produced he makes minor adjustments "on the fly" to keep the meter on the control panel at the correct reading. "Drift" during the run is indicated instantly by the meter and the operator quickly readjusts the roll to keep thickness within tolerance without loss of production. As specification for thickness or weight changes between production runs, it is a simple matter to reset the Beta Gauge and adjust thickness "on the fly".

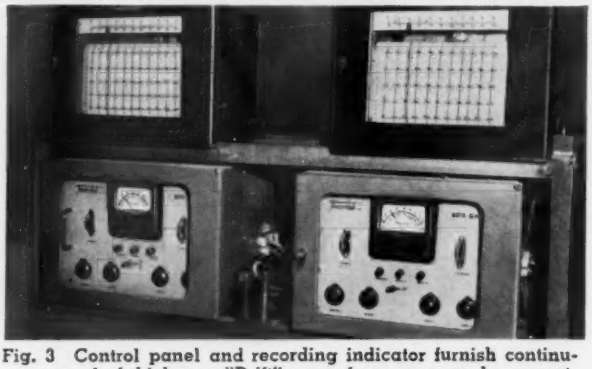


Fig. 3 Control panel and recording indicator furnish continuous record of thickness. "Drift" away from spec can be corrected quickly. With permanent visual record, supervision is minimized, and operators can give attention to other critical quality factors.

For embossed goods, Beta Gauging is the only accurate, satisfactory means of measuring thickness and getting maximum yield.

The permanent record provided by the Tracerlab equipment has reduced the need for close personal supervision. The production superintendent has a continuous record of production rate, quality and performance of each shift.

Production workers like the new system because it eliminates frequent, tedious mechanical gauge checks and permits them to spend more time checking other critical elements such as color and winding.

Management likes the Tracerlab installation because operating a Beta Gauge requires no special skill, and training of new machine tenders is minimized.

Because of its rugged, industrial type construction, the Tracerlab equipment requires little attention, despite the fact that the gauge is subject to constant vibration. Presto estimates only one hour per week is required for preventive maintenance and gauge standardization.

If you have a problem that involves control of thickness or weight per unit area, Tracerlab will be glad to show you the advantages of Beta Gauging . . . an application of nuclear energy.

Write today — see how Tracerlab can help you.

Tracerlab KELEKET

Tracerlab

130 HIGH ST., BOSTON 10, MASS.
2030 WRIGHT AVE., RICHMOND 3, CALIF.

MATHIESON INDUSTRIAL SULPHURS

RUBBERMAKERS' GRADES

DEVIL BRAND

ground crude sulphur
99.5% min. purity
Grade A—90% passing 200 mesh
Grade AA—97% passing 200 mesh
50-lb. triple-wall paper bags

STAR BRAND

ground refined sulphur
99.9%-100% pure
Grade A—90% passing 200 mesh
Grade AA—97% passing 200 mesh
50-lb. triple-wall paper bags

BLACKBIRD BRAND

ground crude sulphur with
.5% carbon black added
99% min. purity
98-100% passing 325 mesh
50-lb. triple-wall paper bags

SPIDER BRAND

ground crude sulphur with
conditioner added
97% min. purity
98-100% passing 325 mesh
50-lb. triple-wall paper bags

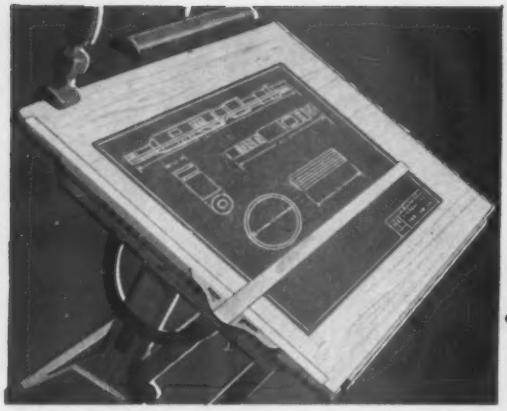
In addition to the above, Mathieson also offers a full line of conditioned, oil-treated sulphurs for the rubber industry. For complete information call your Mathieson representative or write today.

MATHIESON

MATHIESON CHEMICALS
OLIN MATHIESON CHEMICAL CORPORATION
INDUSTRIAL CHEMICALS DIVISION • BALTIMORE 3, MD.

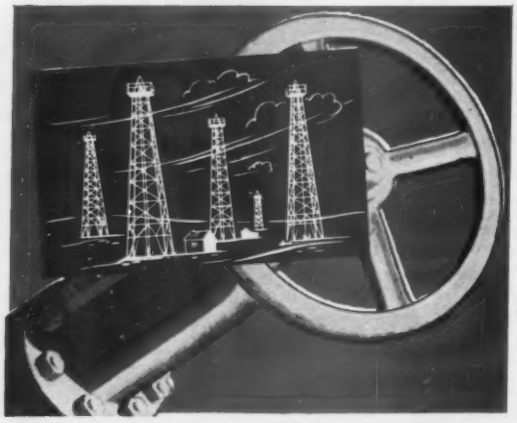
caustic soda • soda ash • chlorine • sulphur • sulphuric acid • bicarbonate of soda • ammonia
sodium nitrate • nitric acid • hydrazine products • sodium methylate • sodium chlorite
hypochlorite products • dry ice and carbonic gas • ethylene glycols and oxide • methanol

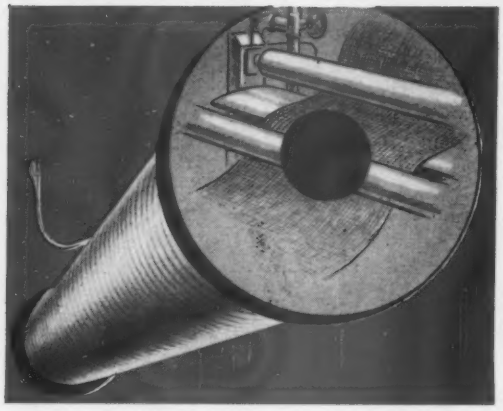
2148



PARACRIL D...

...the oil-resistant rubber for the most critical applications!





Paracril D is unexcelled in resistance to oils, fuels, aromatic hydrocarbons, chlorinated organic liquids, and many hydraulic fluids. It offers great dimensional stability, unusual tensile properties, high resilience, and exceptional abrasion resistance.

A copolymer of acrylonitrile and butadiene, PARACRIL D can be blended with plastic resins or with other types of rubber to impart these special properties.

As a raw polymer, Paracril D can be easily dissolved in many solvents to make low-viscosity adhesive solutions for cement applications.

Wherever you use a rubber or rubber-like product that must stand up under deteriorating oils and solvents—for belting, packing, diaphragms, rolls, printing blankets, hose, or seals—use Paracril D, *the most oil-resistant rubber ever marketed.*

Perhaps Paracril D, or other types of Paracril® made by Naugatuck, can help *you* improve or develop a product. For complete information write to us, *today.*

Naugatuck Chemical

Division of United States Rubber Company
Naugatuck, Connecticut

BRANCHES: Akron • Boston • Charlotte • Chicago • Los Angeles • Memphis • New York • Philadelphia • **IN CANADA:** Naugatuck Chemicals, Elmira, Ontario
Rubber Chemicals • Synthetic Rubber • Plastics • Agricultural Chemicals • Reclaimed Rubber • Latices • Cable Address: Rubexport, N. Y.

Rubber Age

Vol. 77, No. 5 AUGUST, 1955

Tear Resistance of Vulcanized Hevea Latex Films

By J. W. F. van 't WOUT and A. J. de VRIES
Rubber-Stichting, Delft, Holland

Vulcanized Hevea latex films generally show high values of tear resistance in comparison with masticated rubber films. Upon aging these high values decrease rather rapidly after absorption of small amounts of oxygen. Decreasing the sulfur content results in improved aging resistance because of a lowering of the rate of oxygen absorption. Considerable improvement of the tear resistance before and after aging has been obtained by increasing the alkalinity of the latex compound by means of the addition of potassium hydroxide or guanidine derivatives. It is suggested that the effect of increased alkalinity is connected with the specific structure of latex films.

THE physical and mechanical properties of latex films have been the subject of several investigations *(1, 2, 3, 4)* since the introduction of preserved concentrated Hevea latex as an industrial raw material for the manufacture of rubber articles. The determination of these properties has been accomplished by using the same methods which had been developed and proved to be very useful for the testing and evaluation of vulcanized rubber manufactured from smoked sheet and crepe.

With respect to modulus, tensile strength and ultimate elongation, vulcanized latex films appeared to exhibit similar vulcanization and aging characteristics as sheets of masticated and vulcanized rubber. The values of tensile strength and ultimate elongation of Hevea latex films are in general very high and the resistance to aging if measured according to the conventional test methods is equal or superior to that of masticated sheets.

The superiority of vulcanized latex films with respect to strength is most clearly demonstrated by the values of tear resistance which are considerably higher than those of vulcanized masticated sheets and even comparable to those of carbon black-reinforced tread compounds *(5)*.

Note: This is Communication No. 288 of the Rubber-Stichting.

It has been found in this laboratory, however, that after relatively short periods of accelerated aging (e.g., Geer-Evans or Bierer-Davis aging) the tear resistance of vulcanized latex films drops to very low values which are of the same order as those of masticated, vulcanized sheets. Even at room temperature the tear strength has been observed to decrease slowly. Other mechanical properties, such as tensile strength, modulus and ultimate elongation, do not show this abnormal behavior on aging.

Our investigations have been mainly concerned, therefore, with an evalution of possible means of improving the aging resistance of the tear strength of vulcanized latex films. Aging tests have been performed at room and elevated temperatures. In some cases the rate of oxygen absorption has also been measured.

Methods of Film Preparation and Testing

The latex test mixes were prepared by adding sulfur, zinc oxide and accelerators to 60% centrifuged latex under stirring. All compounding ingredients were added in the form of aqueous dispersions or solutions. The dispersions were ball-milled for 24 to 72 hours; as dispersing agents, 4% Darvan and 1% sodium alginate were added.

The latex mixes were strained through a wet finely knit cloth and poured on level placed glass plates in an amount sufficient to produce a film of about 0.5 mm. thick. After drying at 40°C. the films were cured in air at 100°C.

The tensile strength, modulus and ultimate elongation were measured according to conventional methods on a Zwick tensile tester using dumb-bells.

The values of the tear resistance reported in this paper have been measured according to the "Delft method"

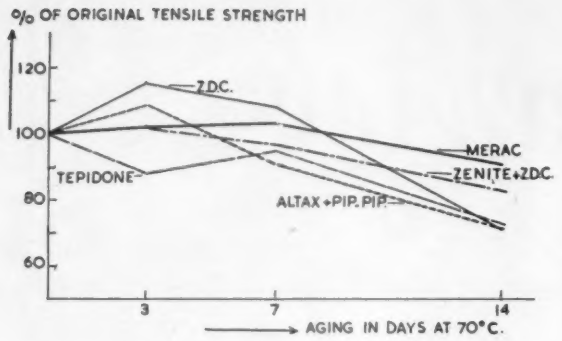


FIG. 1—Effect of aging in Geer-Evans oven at 70°C. on tensile strength of vulcanized latex films compounded with various accelerators.

(6). Other methods for testing the tear resistance gave similar results.

For the determination of the rate of oxidation a previously described apparatus *(11)* was employed with the help of which it is possible to measure volumetrically the amount of oxygen taken up by the rubber film at constant oxygen pressure and at a temperature of 100°C. The oxygen pressure was 1 atm. in all our experiments.

Influence of Vulcanization Recipe on Aging

Influence of Accelerators: The effect of various accelerators on the mechanical and aging properties of vulcanized latex films has been investigated using the following recipe (parts by weight):

Rubber	100
Sulfur	2
Zinc oxide	2

to which the following amounts of accelerator have been added:

(a) 1 part of zinc diethyl dithiocarbamate (Z.D.C.).
(b) 1 part of sodium dibutyl dithiocarbomate (Tepidone).
(c) 1.5 part of Merac (composition unknown).
(d) 1.5 part of Setsit 5 (composition unknown).
(e) 1.5 part of zinc mercaptobenzothiazole (Zenite) + 0.5 part of zinc diethyl dithiocarbamate (Z.D.C.).

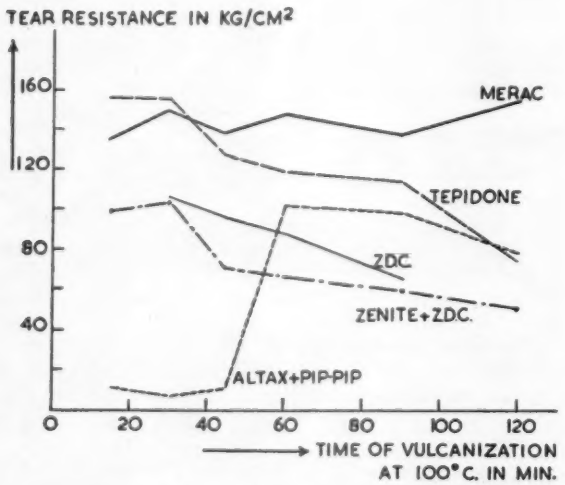


FIG. 3 — Vulcanization characteristics of tear strength of Hevea latex films compounded with various accelerators.

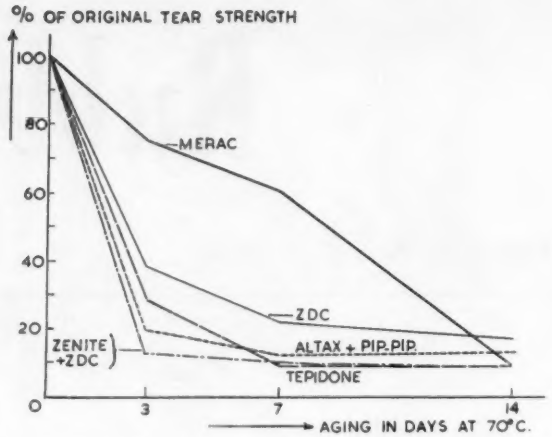


FIG. 2—Effect of aging in Geer-Evans oven at 70°C. on tear strength of vulcanized latex films compounded with various accelerators.

(f) 1.5 part of benzothiazyl disulfide (Altax) + 0.5 part of piperidine penta methylene dithiocarbamate (pip-pip).
(g) 1.5 part of zinc mercaptobenzothiazole (Zenite) + 0.25 part of tetra methyl dithiuram disulfide (Tuads).

The accelerators mentioned under a, b, c and d are ultra accelerators widely used in the latex industry; the combination mentioned under e has found general application as a curative for foam rubber, while f and g are examples of an accelerator combination with "delayed action". The influence of some of these accelerators on the oven aging at 70°C. of tensile strength and tear strength is shown in Figures 1 and 2, respectively.

With respect to the behavior of the tensile strength upon aging, there is not much difference between the various accelerators used. After 14 days aging at 70°C. the tensile strength drops to between 70 and 90% of its original value. The magnitude of the differences between the individual mixes is too small to be considered of any technological importance.

The decrease of the tear resistance on aging, however, shows quite another picture. After short aging periods (3 to 7 days at 70°C.), the tear resistance is reduced to very low values of the order of 10 to 20% of the original ones. Only the latex film containing Merac shows exceptional behavior in this respect. Though its final value after 14 days' aging is of the same order as in the case

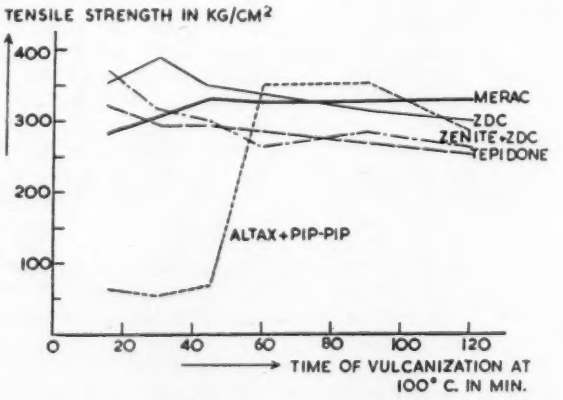


FIG. 4 — Vulcanization characteristics of tensile strength of Hevea latex films compounded with various accelerators.

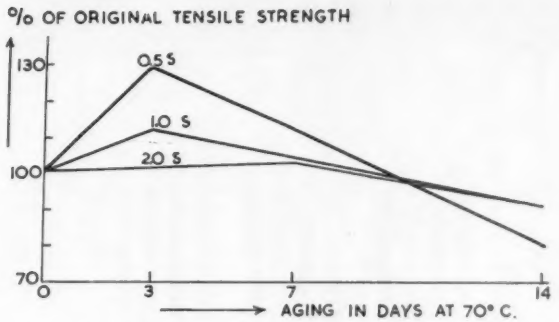


FIG. 5—Effect of sulfur content on the behavior of tensile strength of vulcanized latex films upon aging in Geer-Evans oven.

of the other accelerators, the decrease of the tear resistance is less pronounced; after 7 days in the Geer-Evans oven the tear strength still shows a quite acceptable value.

The exceptional behavior of the Merac compound is also obvious from the vulcanization characteristics of the accelerators investigated. In Figures 3 and 4 both tensile and tear strength have been plotted as a function of the time of vulcanization at 100°C. The tear resistance of the Merac mix attains rapidly a very high value which does not decrease upon prolonged vulcanization. With the other accelerators, however, the tear resistance after reaching its optimum value decreases gradually as vulcanization proceeds. As far as tensile strength is concerned, no appreciable differences can be observed.

Influence of the Sulfur Content: The influence of the sulfur content on the aging properties has been studied for the various compounds mentioned above. The effect of the sulfur content was found to be essentially the same in all cases. As a typical example, the results obtained with the Merac mix are given in Figures 5 and 6. Table I shows the values of the mechanical properties of the films before aging.

Again the value of the tensile strength after aging is hardly affected by the amount of sulfur present. On the other hand, the resistance to aging of the tear strength is considerably improved by decreasing the sulfur content to 1.0 part or less on 100 parts of rubber.

In Figures 7 and 8 the effect of prolonged aging at 20°C. of the same compounds is shown. The results of this aging test, which give a reliable indication about the storage life of latex articles, are in good agreement with those of the Geer-Evans test as shown in Figures 5 and 6. In particular, the decrease of the tear resistance ap-

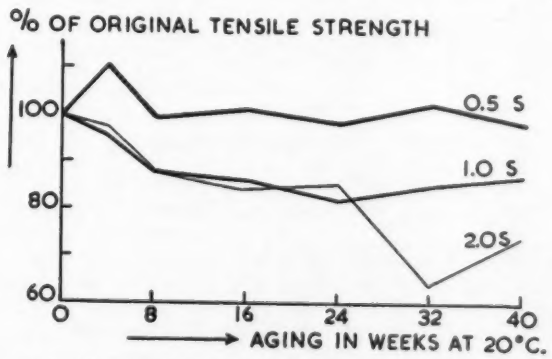


FIG. 7—Effect of prolonged aging at 20°C. on tensile strength of Hevea latex films containing various amounts of sulfur.

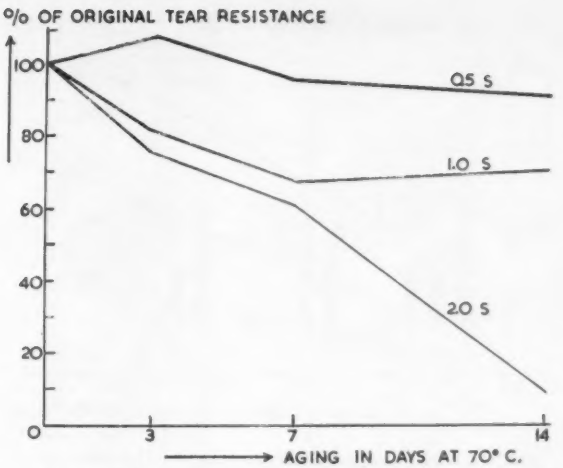


FIG. 6—Effect of sulfur content on the behavior of tear strength of vulcanized latex films upon aging in Geer-Evans oven.

TABLE I—INFLUENCE OF THE SULFUR CONTENT ON THE MECHANICAL PROPERTIES

(Cure: 45 mins. at 100°C.)

Parts of sulfur on 100 Rubbber	0.5	1.0	1.5	2.0
Modulus at 500% (kg/cm²)	12	12	14	17
Tensile strength (kg/cm²)	362	353	369	405
Elongation at break (%)	1000	961	929	950
Tear resistance (kg/cm²)	163	197	175	188

pears to be sensitive to the sulfur content of the compound.

The results of oxygen absorption measurements of latex films accelerated with Merac and containing increasing amounts of sulfur are shown in Figures 9 and 10. It appears from Figure 9 that the rate of oxygen absorption at 100°C. decreases with decreasing amounts of sulfur present. Figure 10 shows that the effect of a given amount of oxygen on the tear resistance is independent

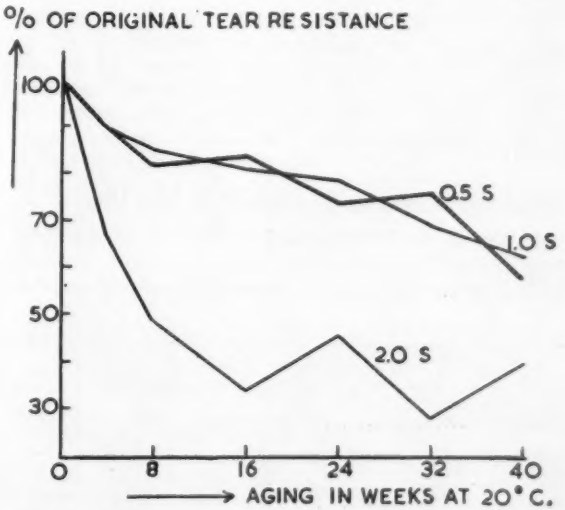


FIG. 8—Effect of prolonged aging at 20°C. on tear strength of Hevea latex films containing various amounts of sulfur.

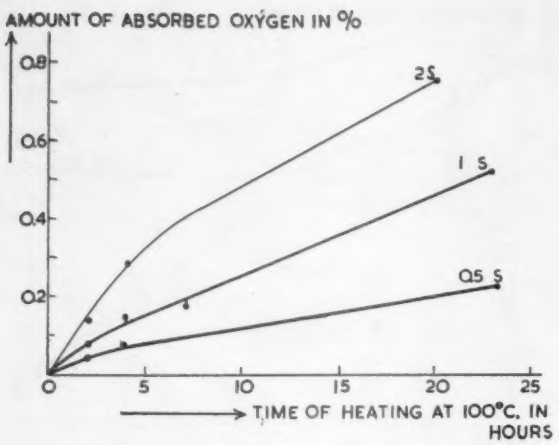


FIG. 9—Influence of sulfur content on the rate of oxygen absorption at 100°C. of vulcanized latex films.

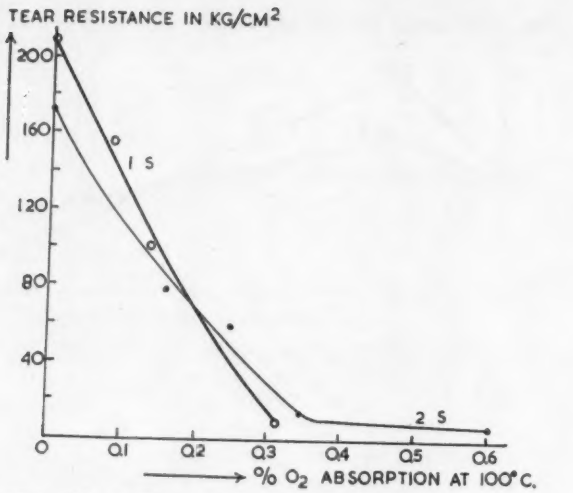


FIG. 10—Effect of absorbed oxygen on the tear strength of vulcanized latex films containing various amounts of sulfur.

of the sulfur content of the film. It may therefore be concluded that the improvement of the aging resistance of the tear strength obtained by decreasing the sulfur content is due to a lowering of the rate of oxygen absorption. Heating the same films in vacuo at 100°C. had no appreciable influence on the tear resistance.

Influence of Antioxidants: The influence of two antioxidants, viz., sym. di-betanaphthyl paraphenylene diamine and hydroquinone monobenzylether, on the oven aging at 70°C. and the oxygen absorption at 100°C. has been investigated for two compounds, one containing Z.D.C. and the other a combination of Zenite and Z.D.C. as accelerator. In both cases two parts of sulfur were added. The results are given in Table II.

It is evident from the given data, that the addition of these antioxidants does not prevent the strong decrease of the tear resistance during oven aging of latex films. Also, the rate of oxygen absorption at elevated temperatures is hardly affected by the presence of sym. dibetanaphthyl paraphenylene diamine.

Yet it is known that these antioxidants improve the oxidation resistance of masticated Hevea rubber; in aging tests under very severe conditions (e.g., in the Bierer-Davis bomb) the effect of these antioxidants on the aging is also apparent in cast latex films *(7)*. The deterioration of the tear resistance caused by the small amounts of oxygen absorbed in the first stage of the oxidation is not influenced at all, however, by the presence of the antioxidant.

Influence of Alkalinity on the Properties of Latex Films

In the discussion on the influence of accelerators, it was shown that an improved aging resistance is obtained with Merac. Furthermore, extremely high values of tear strength are attained with this accelerator. Because of the fact that in all our experiments this accelerator had been used in combination with a small amount of potassium hydroxide (as recommended by the manufacturer) a suspicion arose that the improved aging resistance of the films containing Merac is due to the highly alkaline condition of the compound. In order to confirm this hypothesis, the influence of potassium hydroxide on the mechanical properties and on the aging of vulcanized latex films has been investigated for a number of accelerators.

The curves in Figure 11 illustrate the effect of 0.5

TABLE II—INFLUENCE OF ANTIOXIDANTS ON THE AGING AND OXYGEN ABSORPTION

Accelerator	1 Z.D.C.				1.5 Zenite + 0.5 Z.D.C.						
Hydroquinone monobenzylether	—	1	—		—	1	—				
Sym. di-betanaphthyl paraphenylene diamine	—	—	1		—	—	1				
Days aging 70°C.	7	14	7	14	7	14	7	14	7	14	7 14
% of original Tensile strength	105	89	86	87	90	89	82	78	75	70	— —
% of original Tear resistance	27	26	22	15	23	22	15	14	22	16	20 18
Rate of O_2 absorption 100°C. (ml O_2/gram/hour)	0.16		—		0.13		—		—		—

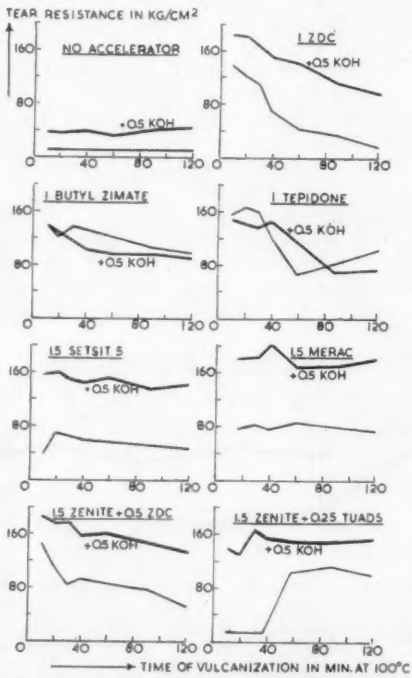


FIG. 11—Effect of the addition of caustic potash on the tear strength of vulcanized latex films.

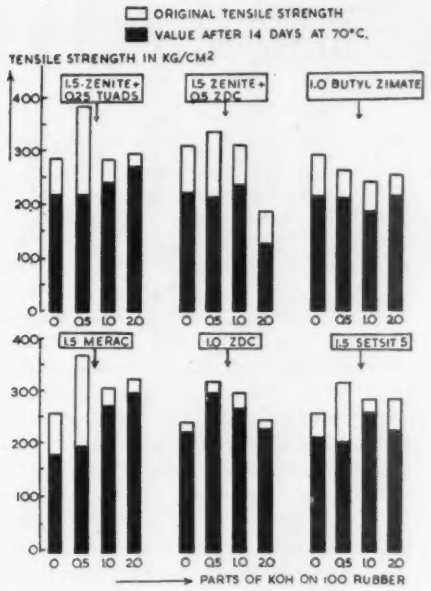


FIG. 12—Effect of the addition of increasing amounts of caustic potash on the tensile strength of vulcanized latex films before and after aging at 70°C. for 14 days.

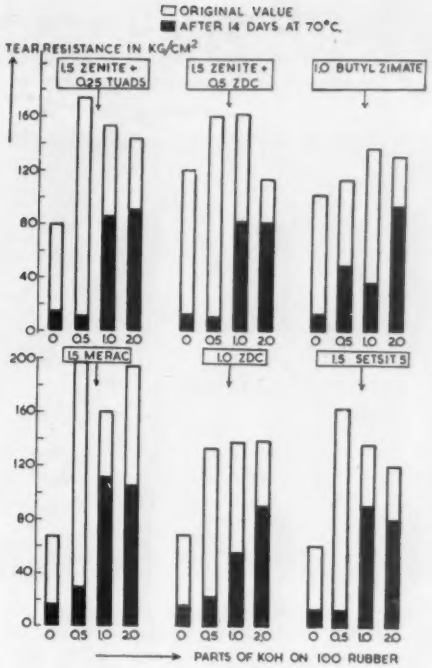


FIG. 13—Effect of the addition of increasing amounts of caustic potash on the tear strength of vulcanized latex films before and after aging at 70°C. for 14 days.

part of caustic potash on the behavior of the tear strength upon curing. The influence on the modulus, tensile strength and elongation at break has been found to be very small.

The tear resistance is considerably increased by the addition of potassium hydroxide, particularly with Z.D.C., Setsit 5, Merac and with the combinations of Zenite + Z.D.C. and Zenite + Tuads. Even if no accelerator is present an improvement of the tear strength is observed. Furthermore, it may be noted that with the Zenite + Tuads combination the vulcanization is accelerated by the addition of KOH. As far as its technological effect on the vulcanization is concerned, potassium hydroxide may be considered, therefore, as a mild accelerator.

The effect of increased alkalinity on the tear strength has also been investigated in films prepared by straight dipping and by coagulant dipping using calcium chloride as a coagulant. In both cases the tear resistance could be improved by adding increasing amounts of potassium hydroxide.

The diagrams of Figures 12 and 13 show the effect of increasing amounts of KOH on the tensile and tear strength of cast films before and after oven aging at 70°C. for 14 days. The films had been vulcanized for 40 minutes at 100°C.

The following conclusions may be drawn from these data: The increase of the tear resistance depends on the amount of KOH added and is in some cases optimal for 0.5 to 1.0 parts of KOH on 100 parts of rubber. A further increase of the KOH content generally results in a small decrease of tear strength.

With Tepidone and Zenite + Z.D.C. a lowering of the tensile strength with increasing KOH content is found. With the other accelerators the addition of increasing amounts of KOH has hardly any influence on the tensile strength.

The aging resistance of the tear strength shows a remarkable improvement as a consequence of the KOH addition (Figure 13 and Table III). In most cases the tear resistance after 14 days aging at 70°C. is of the same order as the tear resistance before aging of the samples containing no KOH.

With regard to the tensile strength only a slight improvement of the aging resistance as a result of the KOH addition is obtained in some cases (Figure 12).

Figure 14 shows that the presence of KOH does not decrease the rate of oxygen absorption at 100°C. of a latex film containing 1 part of Z.D.C. as an accelerator. Obviously, the effect of KOH on the aging resistance is not caused by a diminution of the amount of oxygen absorbed, but must be attributed to a decrease of the harmfulness of the absorbed oxygen. This is evident from Figure 15 in which the tear resistance of these vulcanized latex films is plotted as a function of the amount of oxygen absorbed at 100°C. Whereas the tear resistance of a film containing no KOH after absorption of 0.3% of oxygen at 100°C. decreases to 15% of its original value, the film containing 1.0 part of KOH still retains 60% of the original tear strength after absorption of the same amount of oxygen.

An improvement of the tear strength and its resistance

TABLE III—INFLUENCE OF KOH ON THE BEHAVIOR OF THE TEAR STRENGTH UPON AGING

Parts of KOH/100 Rubber (by weight)	0	0.5	1.0	2.0
	% of original tear resistance after 14 days at 70°C.			
1.0 Z.D.C.	22	17	40	65
1.5 Setsit 5	22	7	66	66
1.5 Merac	24	15	69	54
1.0 Butyl Zimate	13	43	26	72
1.5 Zenite + 0.25 Tuads	19	6	56	63
1.5 Zenite + 0.5 Z.D.C.	11	6	51	71

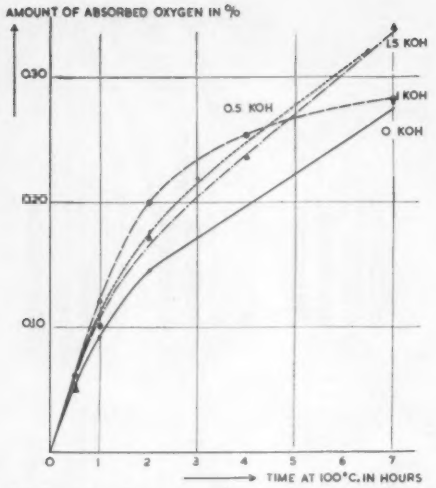


FIG. 14—Oxygen absorption at 100°C. of vulcanized latex films containing various amounts of caustic potash.

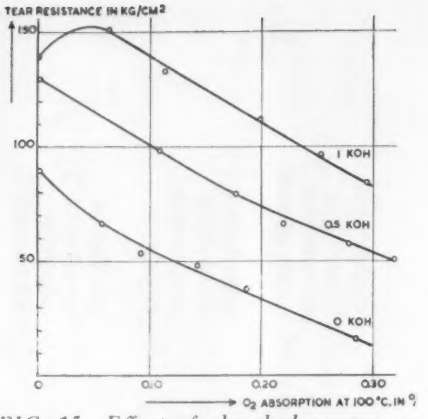


FIG. 15—Effect of absorbed oxygen on the tear strength of vulcanized latex films containing various amounts of caustic potash.

to aging is not only obtained by the addition of alkaline metal hydroxides but can also be effected by adding non-volatile organic bases to the latex. In Table IV the influence of diphenyl guanidine and guanidine carbonate on the tear resistance measured before and after aging for 7 days at 70°C. is shown.

For practical applications it is important to remember that potassium hydroxide and the organic bases used here affect the chemical and mechanical stability of compounded latex in opposite ways. Whereas alkaline metal hydroxides increase the stability of a latex compound, guanidine derivatives have a destabilizing effect. Depending on the process used a suitable choice has therefore to be made.

Conclusion

In comparison with vulcanized masticated rubber the mechanical properties of cast, vulcanized Hevea latex films show outstanding values, particularly with respect to the resistance to tearing. Though the tear resistance of rubber is usually believed to be due to the formation of a strengthening "structure" (molecular alignment, crystallization) at the top of the cut during stretching *(8, 9)*, the scanty knowledge about tearing does not yet warrant a definite explanation of the high values of the tear strength generally encountered in Hevea latex films.

It is known, however, that in a cast latex film the rubber globules more or less retain their identity *(10)*. Furthermore, the intensive entanglement of the long rubber molecules in the globules is not destroyed as in the case of masticated rubber. Both these factors may be responsible for the high tear resistance. The entanglement of the molecules may have a reinforcing effect on the continuous rubber phase developed under stress. The influence of the particulate structure of a latex film on the resistance to tearing is less clear; from the observed facts it may be deduced, however, that the strength of the bonds between the rubber globules must be very high. It is obvious then that the composition of the interfacial layer surrounding the rubber globules has an important influence on the strength of latex films *(1)*.

An explanation of the experimental observations recorded in this paper (such as the deteriorating effect of very small amounts of oxygen and the effect of alkalinity) might be found in chemical and physical changes induced in the interfacial layer. In favor of this assumption it was found that the addition of potassium hydroxide has no influence on the tear strength of masticated rubber. The conditions of the interfacial layer during gelling of the compounded latex may be, therefore, of great importance with regard to the strength of the ultimate article and its resistance to aging.

TABLE IV—INFLUENCE OF GUANIDINE DERIVATIVES ON THE TEAR RESISTANCE

Parts of Guanidine Derivative per 100 Rubber	Tear Resistance in kg/cm² Before Aging	Tear Resistance in kg/cm² After 7 Days 70°C.
None	75	15
2.0 Diphenyl Guanidine	145	67
1.5 Guanidine Carbonate	187	62

ACKNOWLEDGMENT

This work is part of a program of technological research on latex problems undertaken by the Research Department of the Rubber-Stichting under the management of Dr. H. C. J. de Decker. The authors wish to thank Dr. M. van den Tempel for valuable suggestions.

LITERATURE REFERENCES

(1) van Dalfsen, J. W., *Arch. Rubbercultuur,* Vol. 22, p. 129 (1938).
(2) Croux, G., and Lemarchand, S., *Rev. Gén. Caout.,* Vol. 28, p. 867 (1951).
(3) Wohler, L. A., *Ind. Eng. Chem.,* Vol. 9, p. 117 (1937).
(4) Pierson, R. M., Coleman, R. J., Rogers, T. H., Jr., Peabody, D. W., and D'Ianni, J. D., *Rubber Chem. Tech.,* Vol. 25, p. 983 (1952).
(5) Houwink, R., de Vries, A. J., and van 't Wout, J. W. F., *Rev. Gén. Caout.,* Vol. 30, p. 181, figure 1 (1953).
(6) Nijveld, H. A. W., "Proceedings of the Second Rubber Technology Conference," London, England, p. 256 (1948).
(7) "Vanderbilt Latex Handbook," R. T. Vanderbilt Co., New York, N. Y., p. 142 (1954).
(8) Rivlin, R. S., and Thomas, A. G., *J. Polymer Sci.,* Vol. 10, No. 3, p. 291 (1953).
(9) Janssen, H. J. J., "Proceedings of the Third Rubber Technology Conference," London, England, 1954 (to be published).
(10) de Vries, A. J., and Dalitz, V. Ch., *Trans. Inst. Rubber Ind.,* Vol. 30, p. 76 (1954).
(11) van Amerongen, G. J., *Rev. Gén. Caout.,* Vol. 20, p. 136 (1943); trans. in *Rubber Chem. Tech.,* Vol. 19, p. 170 (1946).

Two-Part System Speeds Rubber Parts Handling

THE Monarch Rubber Company of Hartville, Ohio, has gained important materials handling economies with a modern two-part positioning and handling system. Known to the industry as a specialist in producing solid rubber industrial tires, Monarch also supplies major automobile manufacturers with such molded rubber parts as motor mountings, axle bumpers, and body-to-frame bushings.

The new Monarch handling system consists of drop-bottom boxes and positioning stands, which are widely used in the metal working industry for stampings and castings. Called Work-O-Matics, the two units are made by the Union Metal Manufacturing Company of Canton, Ohio.

Old and New Systems

Under Monarch's old handling system, the pressman removed the rubber parts from the molds and dropped them into a drum. Two or three men "wrestled" the awkward drums onto pallets, and the pallet-loads were fork-lifted to the inspection area. There, two or more men upset the drums, and shovelled the moldings onto inspection benches. Since each bench accommodated only a few shovelsful, frequent servicing of inspection stations was necessary.

Now the pressman drops parts from the molds into a drop-bottom box (Figure 1). When the box is loaded, a fork truck operator moves it to the inspection area, where he either tiers it completely on other Work-O-Matics, or sets it on a positioning stand (Figure 2). As the truck operator withdraws his forks, the hinged box-bottom opens and parts flow into the work-level tray of the stand. This tray holds 25 per cent of the box contents, more than enough to provide the inspector with a continuous supply of parts while an empty box is replaced with a loaded one. The tray end is removed to speed job finish-off. The inspector sits in front of the stand, using its work-level tray as a bench. After inspecting the parts and removing flash, she drops them into shipping cartons. Figure 3 shows an assembly operation.

FIG. 3—In this view the operator is inserting metal units in rubber bushings. After completing the punching operation, the assembly is dropped into shipping cartons.

Since only the fork truck operator is needed to handle parts under this new system, handling labor formerly required has been freed for more productive work. Plant housekeeping also has been improved. Before, floor and aisle space in the inspection area was congested with drums, which couldn't be stacked, and littered with rubber parts around the inspection benches. Now box loads of parts awaiting inspection are neatly and compactly tiered, and floors are clear at all times.

The Work-O-Matics have been in use for a year and a half, and Monarch has recently ordered additional units to meet increasing production demands.

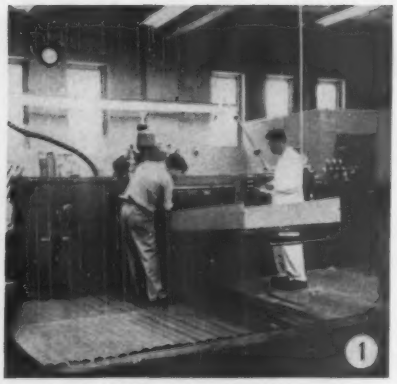
FIG. 1—Pressman removes rubber parts from molds at Monarch plant and drops them into Work-O-Matic box set behind his position on press line.

FIG. 2—When loaded, the Work-O-Matic boxes are either tiered or set on positioning stands as in this photograph, all ready for the inspectors.

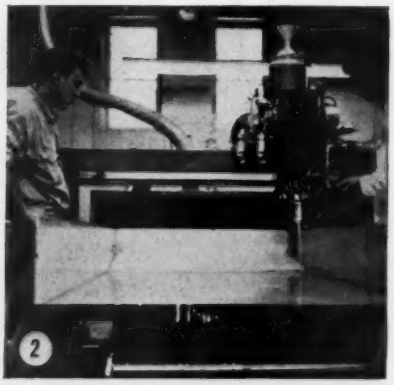
Manufacture and Fabrication of Urethane Foams

THE interesting series of photographs on this page depict the processes recommended by the Mobay Chemical Co., St. Louis, Mo., for the manufacture of urethane foams. On the opposite page are photographs showing the fabrication of a typical end-product, in this case a cored seat cushion. Machinery developed by Mobay converts liquid isocyanates and polyesters into flexible urethane foams in less than four minutes. The urethane foams can be easily machined with simple tools, as will be seen from the photographs on the opposite page.

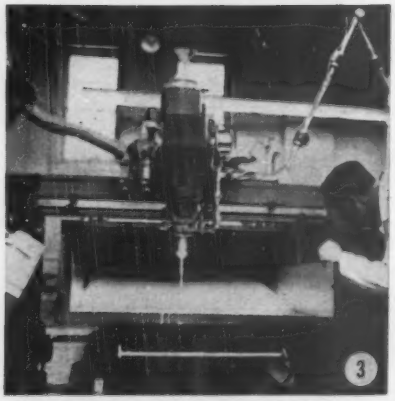
Manufacturing Procedures



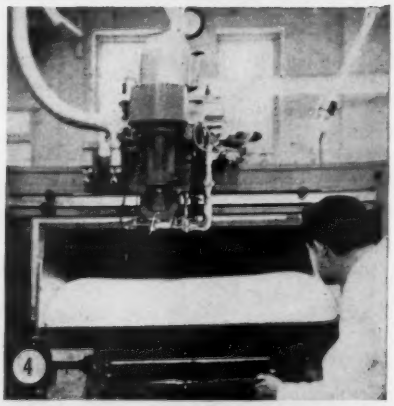
1 One model of Mobay's foaming machines is seen here just before production starts.



2 The start of the production run. The mixing head moves across the mold which travels into the machine.



3 With the mold half-filled, the foaming action is completed at the far end of the mold.

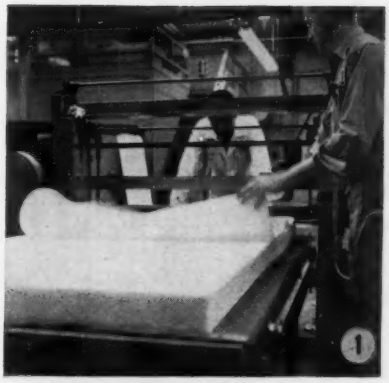


4 The production run is completed. The hood into which the mold moves is used to vent chemical fumes away from the operators.

5 The flexible urethane is removed from the mold. Molds are waxed to permit removal of the foam which otherwise would adhere permanently to the mold.

6 One man carries the completed block of foam, which is 40 inches wide, six feet long, and 9 inches thick.

Typical Fabrication Process



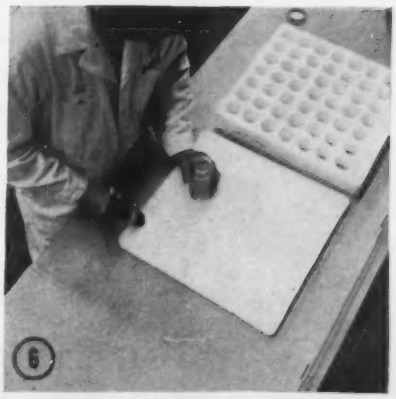
1 A horizontal saw blade, similar to those used in splitting leather, can be used to slit the urethane foam in the production of a seat cushion.

2 A standard band saw is shown here being used to shape the urethane foam.

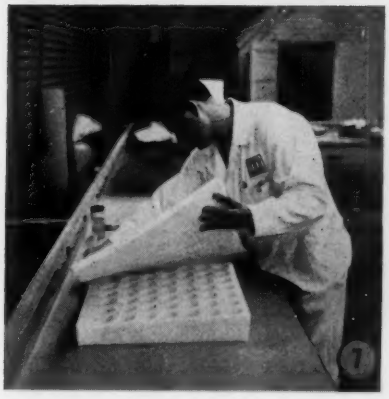
3 In this photograph, a pattern is being used to mark core holes.

4 The core holes are being cut with a circular saw blade in this photograph.

5 The cores are cut through the entire thickness of the urethane foam.



6 Isocyanate cement is used on both the cored block and the topper pad.



7 The pad is shown here being placed over the cored block.

8 The completed seat cushion is seen in this photograph.

Recent Developments in Motor Insulation for Rubber and Plastics Service

By WILLIAM SCHNEIDER

Manager, Production Insulation Section, Westinghouse Electric Corp., East Pittsburgh, Penna.

ATMOSPHERIC contamination by chemicals and highly conducting fine particle carbon black, as found in the rubber and plastics industries, not only stresses otherwise safe creepage surfaces but also tends to penetrate into the insulation wall through minute openings of the varnish films and insulation barriers. Added to these strenuous conditions are the usual variations in humidity accompanied by temperature changes, and oil and grease film deposits common to practically all industrial plants.

Plant operating personnel, as well as designers of electrical equipment, have long been aware of the severity of these service conditions and have taken every precaution to inspect and maintain the apparatus at regularly scheduled intervals to obtain maximum service life. It was soon recognized that standard insulation practices for normal applications were entirely inadequate. Insulation designers made every effort to provide greater protection for the windings by encapsulation or mummification and by the addition of extra varnish treatments. These improvements, along with well planned preventive maintenance schedules, have given considerable relief from service failures to the rubber and plastics industries.

The development of Thermalastic insulation was found to be the answer for the extremely severe operating conditions encountered in the rubber and plastics industries. This insulation is not merely a new material or combination of new materials, but is a completely new insulation system, which does not exist until it is processed into a finished coil, impregnated and then reacted chemically. Thermalastic insulation is the first insulation to use mica tapes and wrappers whose bonding resins are designed to react chemically with the coil impregnant to form a single homogeneous mass. It is also the first to use a completely reactive low viscosity impregnant able to completely fill minute coil and insulation voids, and which combines chemically without solvent evaporation with the bonding resins of the mica products.

Thermalastic insulation begins with specially made mica tapes and wrappers. Large mica splittings are bonded either into a tape or wrapper, depending on the size and the shape of the coil to be wound, with a strong, resilient synthetic resin. The completely insulated coil is vacuum and pressure impregnated with a solventless, heat reactive, synthetic resin and then cured at elevated temperature. This impregnation process with the solventless synthetic resin produces a fill and consolidation of the insulation. The excellent wetting characteristics, plus the low viscosity of the resin, results in a void-free, thoroughly consolidated insulation. The complete chemical reaction of the resin without solvent evaporation during processing assures that no voids are created within the insulation while the heat reaction takes place.

Note: Thermalastic is a registered trade mark of the Westinghouse Electric Corporation.

Special Characteristics of Thermalastic Insulation

Thermalastic insulation offers many advantages, as follows:

1. The dielectric breakdown strength per unit thickness is increased at least 20 percent.
2. The voltage endurance (time to failure at a given voltage) is increased by a factor of more than ten.

FIG. 1—Thermalastic stator winding before application of varnish treatment.

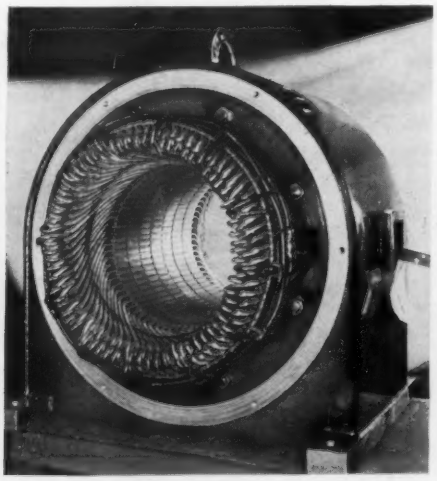


FIG. 2—Thermalastic stator winding after application of varnish treatment.

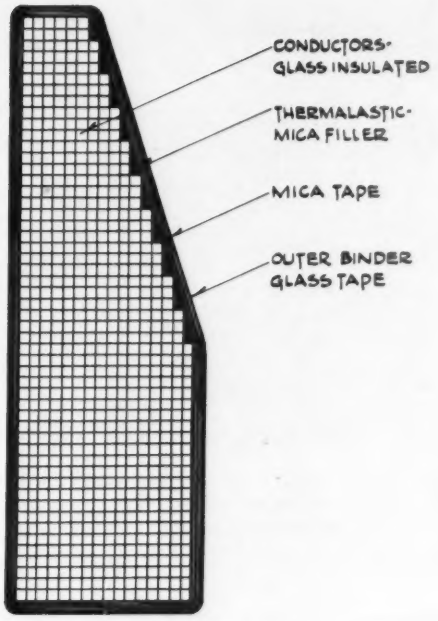


FIG. 3—Cross-section view of synchronous machine field coil for rubber plant service.

3. The resilient nature of the resin impregnant makes Thermalastic insulation an elastic insulating material.

4. Differential movement between copper, iron, and insulation during cyclic heating does not result in rupture or permanent displacement of the mica.

5. Tensile strength is considerably greater than that of conventional insulation.

6. The resin impregnant is thermosetting and does not melt once it is polymerized.

7. The moisture resistance of the resin impregnant itself and the high degree of fill achieved in the impregnating process make the windings highly resistant to moisture.

8. The chemical inertness of the resin impregnant makes the insulation resistant to attack by ordinary solvents, lubricating oils, and weak acids and alkalis encountered in most industrial applications.

9. The solidity and density of Thermalastic insulation render it impervious to contamination from any agents encountered in industrial service.

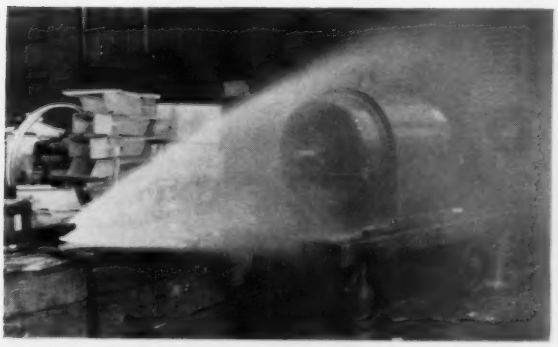


FIG. 5—2300-volt induction motor being sprayed with water while energized.

FIG. 4—Side and bottom view of a Thermalastic field coil for rubber plant service.

10. The elimination of voids and the density of the insulating barrier result in a lower temperature drop across the insulation barrier.

Applications of the Insulation

Thermalastic insulation is used for all large a-c and d-c machine windings in all voltage classes for new machines, and for rewinding old machines. It is used for either Class A or Class B stator and rotor coils. Class A coils incorporate organic material, such as the cotton conductor insulation and other cotton binders in the construction; however, the major ground insulation is either mica tape or wrapper. Class B coils use glass or mica

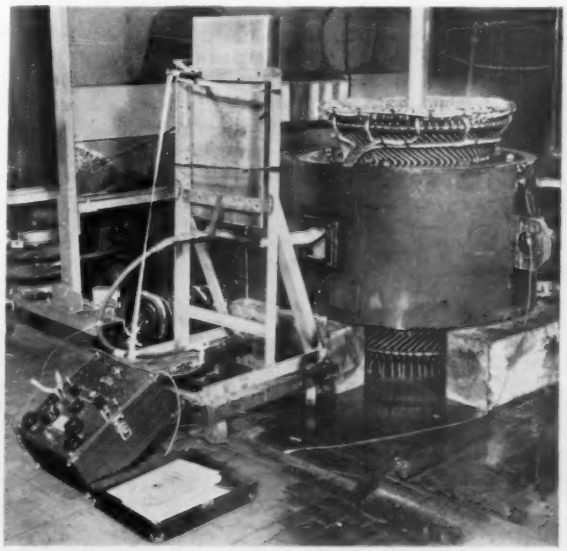


FIG. 6—Laboratory moisture-resistance test on a 4160-volt motor. The test lasted 275 hours, and 200,000 gallons of water passed over winding.

for conductor insulation, glass binders for structural purposes, and mica tape or wrapper as the ground insulation. The outer binder for both Class A and Class B coils is glass tape. All coils, after they are completely insulated, are vacuum and pressure impregnated with the low viscosity synthetic resin impregnant using high vacuum techniques.

In order to obtain a well sealed over-all winding, the connection taping between coils and phase groups is thoroughly saturated with a modified resin which cures at room temperature. Although the varnish treatments of the completed windings no longer have the same significance, the usual varnish treatments are applied as an added measure of protection.

Typical photographs of Thermalastic coils and windings are shown in Figures 1 to 3. Figure 1 is a photograph of a completed Thermalastic stator winding of a 950-hp, 4160-volt, four-pole induction motor. Figure 2 is a view of the same stator winding after it has been varnish treated. Figure 3 is a cross-section drawing showing the construction of a synchronous machine field coil.

The construction shown in Figure 3 is especially designed for rubber plant applications to overcome the carbon black penetration and surface contamination problems. The coil is completely encapsulated by a solid, homogeneous insulation wall through which contaminants or moisture cannot penetrate. The solidity and effective isolation of electrical conductors from outside contaminants is evident in Figure 4, which shows a finished field coil before surface varnish treatments are applied.

The principal advantage of Thermalastic insulation for motor windings is its resistance to moisture, dirt, oil, acid, and alkalis. The performance of the impregnating resin is very stable chemically, and contaminating substances cannot penetrate into the windings.

Thermalastic insulation has been used on weather-protected motors for outdoor service for approximately two and one-half years. It has been used for the same period on motors in rubber plants and in other applications where the operating conditions are extremely severe. These included chemical plants and some steel mill drives with the motor located out in the mill. It has been applied in all the most severe locations where standard motors were not giving satisfactory service.

To date, about 3,000 motors with Thermalastic insulation have been built. In addition, a large number of machines have been rewound with Thermalastic windings. No field failures have occurred on any motor in service with this insulation. The performance and reliability of motors with the new insulation under adverse operating conditions far exceeds anything attained with previous types.

Test Results

A test of the moisture resistance of Thermalastic insulation is shown in Figure 5. This open type 950-hp, 2300-volt squirrel cage motor was exhibited at the Plant Maintenance and Engineering Show in Chicago running at full voltage while water was sprayed on the connection end of the winding. During the four days at the exhibit, the insulation resistance of the stator winding remained constant at 400 megohms.

A more informative test of the resistance to moisture of Thermalastic insulation is shown in Figure 6. The stator of a 950-hp, 4160-volt motor was mounted vertically with a standpipe through its center. The standpipe was equipped with nozzles that sprayed all parts of the winding with water. Over 200,000 gallons of water were

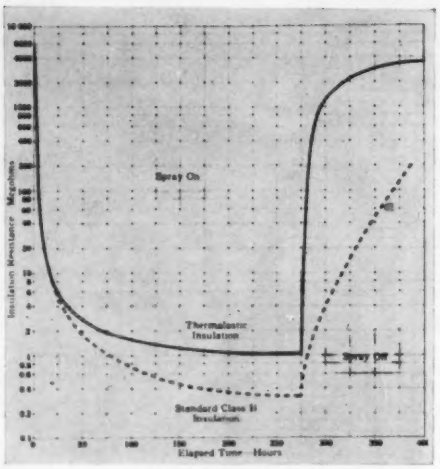


FIG. 7—These results of laboratory spray test show changes in insulation resistance of a Thermalastic insulated winding compared to a standard Class B winding.

sprayed over the winding during the 275 hour test. For comparison, a standard Class B winding was also tested in the same manner. The results of both tests are shown in Figure 7. The insulation resistance of the Thermalastic winding flattened out at one megohm, where the standard winding was only one-third as good.

The superiority of Thermalastic insulation is best shown in the recovery curves after the water was shut off. The windings were not dried, but were left in place at room temperature. During the first part of the recovery cycle, there were puddles of water under the motor from the spray. In spite of these conditions, the insulation resistance of the Thermalastic winding recovered to ten megohms in one hour. This rapid recovery proved that the moisture was strictly a surface phenomenon and had not penetrated into the inside of the insulation walls.

Coming Next Month...

"Vulcanization of Rubber with High-Intensity Gamma Radiation", by Wallace W. Jackson and Denver Hale of the Wright Air Development Center—The first practical description of the application of gamma radiation for the vulcanization of natural and synthetic rubbers. The technique shows considerable promise.

"Petroleum Waxes for Protecting Rubber Compounds from Cracking", by Paul D. Sharpe of the Socony Mobil Laboratories—Includes a comprehensive discussion of the relative merits of ozone-exposure testing and the natural aging of rubber. Indicates how some erroneous conclusions are frequently drawn from accelerated tests.

"The Production, Applications and Possibilities of Balata", by Lillian Cook of the Rubber Division Library—A comprehensive review of balata, accompanied by 94 bibliographical references.

"How Air Conditioning Simplifies the Testing of Synthetic Rubber", by Joseph B. O'Brien of the Surface Combustion Corporation—A factual report on laboratory testing of rubber samples by Phillips Chemical.

Plus several short practical articles.

Protective Materials for Rubber: Antioxidants, Antiozonants and Waxes

Report of a Symposium Sponsored by the Akron Rubber Group

A SYMPOSIUM on "Protective Materials for Rubber" was presented before the Akron Rubber Group at its meeting on January 28, 1955, held at the Mayflower Hotel in Akron, Ohio. Dr. G. S. Whitby, Professor-Emeritus of the University of Akron, presided as moderator, and the panelists included the following: A. M. Neal (DuPont), G. C. Maassen (Vanderbilt), D. E. Baker (Monsanto), I. E. Cutting (Naugatuck Chemical), and A. R. Davis (American Cyanamid). Each of the panelists delivered a brief address on various protective materials, following which a lengthy question-and-answer session was held.

In introducing the symposium, Dr. Whitby pointed out that antioxidants rank second only to accelerators among the critical components used in rubber compounding. Indicating that the total production of antioxidants in 1951 amounted to 57,000,000 pounds (28,500 short tons), he pointed out that the amount of antioxidants used by the rubber manufacturing industry represents, on the average, only slightly less than 2% of all the new rubber, both natural and synthetic, consumed.

Dr. Whitby also pointed out that there is some objection to the use of the term "antioxidant" because when applied to rubber it is not a chemical that will prevent any and every kind of oxidation to which rubber might be subjected but rather to prevent oxidation by the atmosphere. Actually, he stated, when we use the term as applied to rubber we are really using it as an abbreviation for anti-auto-oxidant, because the phenomenon is one of autooxidation.

The moderator further stressed the point that we do not yet by any means fully understand the mechanisms by which the autooxidation of rubber takes place and by which antioxidants function in preventing it. He added that it is very important that work on these fundamental questions be pressed, because it holds out the hope that ultimately on the basis of a fuller understanding of these mechanisms we may be able to develop very much improved protective agents.

Digests of the talks made by the five panelists, together with the questions and answers which highlighted the symposium, follow herewith.

General Antioxidants for Synthetic Rubber Products

By A. M. NEAL

Elastomers Division, E. I. du Pont de Nemours & Co., Wilmington, Del.

THE superior resistance of synthetic rubber products to the degradative effects of heat, oxygen and ozone has been so thoroughly established that it is difficult to realize that one of the most serious deficiencies of the German methyl rubber of World War I was its extreme sensitivity to oxidation. Excluding Butyl and Hypalon, where most of the resistance is a result of the structure of the polymer, that is, its lack of chemical unsaturation, the preeminent position of modern synthetic rubber with respect to deterioration is the result of the development of antioxidants. Even with Butyl rubber and Hypalon, antioxidants are normally added to produce products having the greatest resistance to attack.

There are at least two very fortuitous circumstances relating to the use of antioxidants with synthetic rubber that are worthy of mention. First, those general purpose antioxidants which were developed for use with natural rubber have proven to be effective with synthetic rubbers. It should be recognized that this is an unusual and not a normal condition since antioxidants do not usually function well in more than one system. For example, outstanding antioxidants for Diesel oil are seldom very good in gasoline. The second fortunate factor is that experience has indicated that the general purpose antioxidants are even more effective in synthetic rubber than they are in natural rubber. It is probably safe to say that if it had not been for these two factors, the successful transformation from natural to synthetic rubber during World War II would have been difficult, if not impossible.

Unvulcanized natural rubber contains a naturally occurring antioxidant which is highly effective in protecting the gum, although it appears to be largely destroyed during the vulcanization process and must be supplemented in order to produce finished products having adequate stability. With synthetic rubber, of course, no such product is present, and it was soon found that in the absence of a protective agent, unvulcanized synthetic rubbers, particularly those based on butadiene, underwent a rapid oxidation to produce a hard resinous material devoid of rubberlike properties.

The general purpose antioxidants, such as phenyl beta naphthylamine and the ketone diphenyl amine reaction products, have proven highly effective in overcoming this type of deterioration. This is in direct contrast to their effect in unvulcanized natural rubber where Blake and Bruce (*1*) have shown that the addition of phenyl beta naphthylamine actually accelerates the rate of combination of oxygen.

Maassen and Youmans (*2*) have recently shown some of the inconsistencies which can result from attempts to evaluate the life expectancy of rubber products solely by means of accelerated aging tests. Winn and Shelton (*3*) have shown that the presence of 1% of a general purpose antioxidant, such as phenyl beta naphthylamine, in a GR-S tread stock will approximately double the life expectancy of that stock as measured by the air oven test at 100°C. Dinsmore and Fielding (*4*) compared the age resistance of a natural rubber tread stock and a GR-S tread stock, both of which were protected with phenyl beta naphthylamine, and concluded that, judged by either the air bomb test or the Geer oven test, that the GR-S stock was the more resistant to deterioration. Schoch and Juve (*5*) have shown essentially the same results, that is, a superiority for the synthetic product in a comparison of the age resistance of a natural rubber stock and one based on nitrile rubber.

In only one important respect have antioxidants for synthetic rubber proven to be inferior to their counterparts in the natural rubber system. To date, no antiflexing antioxidant for synthetic rubber has been found which is as efficient as the special purpose antiflex cracking antioxidants have been in natural rubber. This is probably due to the fact that even in natural rubber these materials are most effective in preventing the initiation of cracks and are only moderately effective in preventing crack growth. With synthetic rubber, crack initiation is far less important than crack growth.

Since neoprene products have been in use for over 20 years, it is safer to correlate service life with accelerated aging tests with this synthetic rubber than it is with either GR-S or nitrile rubbers. Although by both of these criteria neoprene has established an outstanding record as being resistant to oxidative degradation, it is also equally evident that the efficiency of antioxidants in neoprene products has been a large contributing factor to this record.

Neal, Bimmerman and Vincent (*6*) reported that it took approximately 40 days' exposure in the oxygen bomb at 70°C. and 300 psi oxygen pressure to reduce the tensile strength of a lightly loaded neoprene stock containing phenyl beta naphthylamine to 50% of its original value. Corresponding rubber stocks required about 20 days for the same amount of degradation. Kowalski (*7*) has shown that it takes about a year in the oxygen bomb to completely destroy a neoprene gum vulcanizate containing 1% of phenyl beta naphthylamine. In both of these cases the products are much more resistant to deterioration than are corresponding natural rubber stocks. And, in both cases, the effect of adding the antioxidant to the neoprene stock has resulted in a much greater improvement than when it was added to the natural rubber stock.

Thompson, Baker and Brownlow (*8*) have shown, also, that the addition of high amounts of general purpose antioxidants, such as pheyl beta naphthylamine or the ketone diphenylamine condensation products, to a neoprene stock, particularly when augmented with diphenyl para phenylene diamine, results in an increased ozone resistance, particularly resistance to high concentrations of ozone.

One of the outstanding achievements of the rubber industry was the rapidity with which it translated the theoretical work of Moureu and Dufraisse in the oxidation of acrolein (first published in 1922) into the development of commercially valuable antioxidants for use in practical rubber products. This brief review of the role of antioxidants in the protection of synthetic rubber products shows that the industry has been just as alert in the 1940's as it was in the early 1920's, and that the results have been just as beneficial.

LITERATURE REFERENCES

(1) Blake and Bruce, *Rubber Chem. Tech.*, Vol. 12, p. 181 (1939).
(2) Maassen and Youmans, New York Meeting, American Chemical Society, September, 1954.
(3) Winn and Shelton, *Ind. Eng. Chem.*, Vol. 36, p. 728 (1944).
(4) Dinsmore and Fielding, *I. R. W.*, Vol. 119, p. 457 (1949).
(5) Schoch and Juve, ASTM Technical Publication No. 89, p. 59 (1949).
(6) Neal, Bimmerman and Vincent, *Ind. Eng. Chem.*, Vol. 34, p. 1352 (1942).
(7) Kowalski, unpublished results.
(8) Thompson, Baker and Brownlow, *Ind. Eng. Chem.*, Vol. 44, p. 850 (1952).

General Antioxidants for Natural Rubber Products

By G. C. MAASSEN

R. T. Vanderbilt Co., East Norwalk, Conn.

WALDO SEMON, writing in the Davis and Blake monograph on rubber, *Chemistry and Technology of Rubber*, gives the definition of an antioxidant as being a material which when added to natural rubber in small proportions hinders oxidation or the effects of oxidation. It is a well known fact that natural rubber contains small proportions of natural occurring materials which serve as antioxidants. This was shown in 1895 when Henriques demonstrated that if these small proportions are removed from rubber by acetone extraction, the remainder shows an increased tendency to oxidize. Just when the use of synthetic antioxidants began is rather indefinite, because when Oenslager discovered the organic accelerators in 1906 he satisfied the definition of an antioxidant. It is quite well known that mercaptobenzothiazole, besides being an accelerator, is also a pretty fair antioxidant. C. C. Davis, writing in 1932, established somewhat of a date when he said that ten years previously the use of antioxidants was unknown and that in 1932 they had become accepted in the rubber industry. During that year about four million pounds were used, representing about one-half of one percent based on the rubber consumed.

The total volume of antioxidants consumed today is, of course, much larger and although I would say that it is appreciably greater than 1%, Dr. Whitby has reported that it is just a little less than 2%. It is also a well known fact that much of the deterioration of rubber is due to oxidation and that oxidation, of course, depends on the service conditions and the testing conditions required.

The antioxidants can be divided essentially into derivatives of phenols and derivatives of aromatic amines. The

phenol derivatives are slightly less discoloring and staining than the amines, but for the most part the amines are stronger antioxidants. There are naphthylamines, such as pheyl beta naphthylamine and adol alpha naphthylamine, which would be considered general antioxidants and are used for most general purpose situations so long as the dynamic characteristics, staining, and discoloration properties are not taken into consideration. There are alkylated diphenyl amines which are also used for general purposes and for the most part are slightly less staining.

For flex life there are such materials as the reaction products of acetone and diphenylamines and also combinations of naphthylamines and diphenyl paraphenylene diamines. The diphenyl paraphenylene diamine is a very good material for improving the flex life of rubber articles. However, its use is limited because when used in quantities above 3%, excessive blooming occurs. It is also known that it is needed to protect against copper and manganese deterioration. It is thought that the copper and manganese serve as catalysts for the oxidation reaction and a material to be used for this particular service needs to serve a dual function, namely, that of deactivating the copper and the manganese and still serve as the antioxidant. For that purpose there are materials like dibetanaphthyl phenyldiamine and also disalicyl propylene diamines in combination with other antioxidants.

For heat resistance there are materials like the alkylated polymerized dihydroquinolines and, where it is necessary to be concerned primarily with staining and discoloration, there are materials such as the alkylated hindered phenols which show a minimum of staining and discoloration and still are good antioxidants.

The problem of ozone attack has been with us for a long time and during the past few years a great deal of effort has been put forth to try to learn of materials which will give ozone protection. It has been found that some of the commercially available antioxidants when used in quantities greater than what is normally used for normal antioxidant purposes do have some effect toward preventing this degradation. Other materials have been investigated and among them some have been found which are extremely good for ozone protection, but for the most part these materials are toxic and consequently are questionable as to their commercial use.

Time, of course, does not permit a complete dissertation on antioxidants and I do not mean to infer that only the materials that have been mentioned are suitable for the particular service and testing conditions which have been described.

Protective Waxes

By I. E. CUTTING

Naugatuck Chemical, Division of U. S. Rubber Co., Naugatuck, Conn.

OZONE cracking of rubber products has become one of the most serious problems in the rubber industry and there is great activity in research and compounding to remedy or alleviate it. The concentration of ozone in the atmosphere is never very high and varies considerably at various localities and during the year.

Ozone attacks the polymer molecule of the double bonds to form ozonide. The rubber must be under stress before ozone cracking will take place. These stresses are present in all vulcanized articles. There appears to be a critical point for every rubber compound, but it is usually in the range of 10 to 50% elongation. Below this critical point the cracks become smaller and rather deep. Above the critical point the cracks become smaller and more numerous. Ozone cracking does not require sunlight and will take place in the dark as well as in the light.

Several chemicals are available to combat ozone cracking, both static and dynamic, but can only be used in black stocks as they cause discoloration and lacquer staining.

A widely used means of preventing or retarding the ozone cracking of vulcanized rubber is to incorporate waxes which will exude and form a surface film. This film should be sufficiently flexible to withstand moderate stretching without rupture and thin enough so that it will not flake off and leave unprotected areas. If the wax film is damaged, the reserve of wax in the stock must be capable of reforming it completely. Low melting waxes may be reabsorbed into the rubber at summer temperatures with a resulting loss of protection. High melting waxes may offer good protection in summer, but are much less protective in winter, presumably because the migration rate at winter temperatures is so low as to impair their effectiveness.

Waxes are suitable to be used in certain types of dynamic service and especially in conjunction with an antiozonant. The waxes inhibit static cracking while the antiozonants augment this effect and also protect during flexing of the rubber.

There is a great difference in the behavior of waxes from season to season, from one locality to another, depending upon the concentration of ozone in the atmosphere. Because of these reasons, blends of waxes are extensively used which are designed to give the most practical all-around protection.

The type of polymer, amount and type of compounding ingredients, including plasticizers and softeners, and degree of protection required will dictate the amount of the blended wax to use. Fillers absorb waxes and the use of softeners, such as mineral rubber, and asphaltic hydrocarbons in which the waxes are soluble necessitates the use of large amounts, even as high as 10 to 20% on 100 parts of polymer.

The solubility of waxes in different polymers varies. For instance, it has been found that GR-S will absorb larger amounts than natural rubber before blooming to the same degree. In nitrile rubbers and the chloroprenes, the lower melting point blends have been found to be more effective than the higher melting point blends. In Butyl rubber the medium range melting point blends are recommended.

Frosting, which has the appearance of white bloom, is another effect from ozone exposure and is prevalent during the warmer seasons under conditions of high humidity. Certain type waxes have been found to be effective antifrosting materials; others are without effect in this respect. Protection from frosting can be blended into a mixture of waxes by proper choice of ingredients. The amount of wax used to prevent frosting is usually less than that required for protecting against cracking.

Non-Staining Antioxidants for Dry Compounded and Latex Products

By A. R. DAVIS

American Cyanamid Co., Stamford, Conn.

IN a strict sense "non-staining" may also mean "non-discoloring". As applied to antioxidants for use in rubber the term "non-staining" is used to describe those materials which in themselves impart no color to the rubber product and which also develop no color or a minimum of color change in the rubber product or on its surface on exposure to light or other aging conditions.

White or light-colored rubber products made from dry rubber or latex in the absence of an antioxidant, in general, tend to show some discoloration or color change on exposure to light or other aging conditions. The degree or amount of discoloration depends on a number of factors which may include the rubber, sulfur ratio, type of acceleration, softeners and plasticizers, as well as the filler and reinforcing pigments. However, white and light colored rubber products like other rubber products are, of course, subject to oxidation on aging in storage or use with the resulting impairment of service life.

Antioxidants to improve the aging qualities and service life of white or light-colored rubber products should develop no color or only a very small amount of color over and above that which may occur in their absence when the rubber product is exposed to light, aging or service conditions. These may then be called "non-staining" or "non-discoloring" antioxidants.

The best non-staining antioxidants belong to the class of chemicals known as phenols. This seems to be an expanding class of antioxidants with several new materials added to the list in recent years. These phenolic type chemicals show varying degrees of antioxidant activity from slight to very good. Some give practically no discoloration on exposure to light and other aging conditions while others show only a very moderate amount of discoloration even in the best white rubber products made from dry rubber or latex.

Typical phenolic type antioxidants are as follows:

p-Phenylphenol (Parazone): This chemical gives only fair protection against normal aging in ratios of 0.5 to 1.0% and slight discoloration on exposure to sunlight.

Monobenzyl Ether of Hydroquinone (AgeRite Alba): In ratios of 0.25 to 1.0% on RHC, this material gives moderate protection against oxidation, flexing and frosting, with a small amount of discoloration in white rubber on exposure to sunlight.

2,6-Ditertiarybutyl-4-Methylphenol (DBC, Ionol, Deenax): This hindered phenol in ratios of 1 to 2% on the rubber gives mild protection against oxidation with practically no discoloration in the best white rubber on exposure to light.

Styrene-Phenol Reaction Products (AgeRite Spar, Styphen I, Wing-Stay S): These reaction products, in ratios of 1 to 2% on RHC, give mild protection against oxidation with practically no discoloration in the best white rubber on exposure to sunlight.

2,2'-Methylene bis(4-Methyl-6-tertiarybutylphenol) (Antioxidant 2246): This chemical in ratios of 0.25 to 2.0% on RHC gives very good protection against oxidation and is beneficial against flexing and surface oxidation induced by light, with a slight amount of discoloration in white rubber on exposure to light.

2,2'-Methylene bis(4-Ethyl-6-tertiarybutylphenol) (Antioxidant 425): This material in ratios of 0.25 to 2.0% on RHC gives very good protection against oxidation with practically no discoloration in white rubber on exposure to sunlight.

4,4'-Butylidene bis(3-Methyl-6-tertiarybutylphenol) (Santowhite Powder): This chemical in ratios of 1 to 2% on the rubber gives very good protection against oxidation with very slight discoloration in white rubber on exposure to sunlight.

4,4'-Thio bis(3-Methyl-6-tertiarybutylphenol) (Santowhite Crystals): This chemical in ratios of 1 to 2% on the rubber gives very good protection against oxidation with only a small amount of discoloration in white rubber on exposure to sunlight.

Antiozonants

By D. E. BAKER

Monsanto Chemical Co., Akron, Ohio

THE problem of cracking in rubber has been with us since our first experience with this material. For all except the last 25 years, our rubber has been almost 100% natural. Actually, it is only within the last 15 years that we have had any appreciable amount of synthetic rubber in this country. Nevertheless, we have virtually the same problems of cracking in the synthetic that we have in the natural rubber.

For a long time it was generally thought that cracking was caused by poor compounds, excessive flexing, sunshine and heat. Today we feel that much of our trouble with cracking is due, not so much to these conditions, as it is to the action of ozone. It is a known fact that the ozone concentration is generally higher today than at any previous time for which records are obtainable. It is also known that the ozone content of the atmosphere varies from day to day and month to month. Certain seasons of the year also produce more ozone action on rubber than other seasons do. Fall and winter months do not seem to show nearly as much cracking deterioration in rubber as the spring and summer months in most localities.

We have attempted to reduce or eliminate much of this cracking by adding various waxes, oils and antioxidants. In some cases this has been quite successful and in others, it has not, depending on the service to which the rubber article is put and the locality in which it is used. There have been some materials developed within the last ten years or so, commonly known as antiozonants, that do materially reduce this cracking which is caused by ozone. In certain cases the use of these materials seems to eliminate all cracking due to ozone.

The term "antiozonant" is preferable to "antiozidant" for this class of materials in order to prevent confusing the term with antioxidant which has no general basis. The dosages of these antiozonants necessary to materially reduce or eliminate cracking due to ozone will vary with the compound and the severity of service, but usually a level of 2% is thought to be a fairly safe amount for protection in average cases.

Questions and Answers on Protective Materials

Question—Is the useful life of GR-S tire compounds extended through the use of antioxidants over and above that added at the polymer plant?

Answered by Mr. Baker: The answer to that is "yes." The reason behind this answer is that tire compounds are subjected in many cases to the action of ozone and the antioxidants added at the polymer plant are not sufficient to withstand the severity of ozone attack. Ozone attack and subsequent cracking may occur even before the tire is ever mounted on the rim. Under very severe use conditions there is some advantage to be gained from the use of added antioxidants other than the antiozonant type.

Answered by Mr. Davis: It seems desirable to add antioxidant over and above that added at the polymer plant to prevent gel formation during hot processing. And, of course, it is well known that gel in GR-S detracts from the cut growth resistance of the resulting product.

Question—How can oil masterbatch stocks be compounded so as to be equivalent to low temperature polymer stocks for oxygen and ozone resistance?

Answered by Mr. Cutting: Antioxidant is consumed when rubber is oxidized and the protection is related to the initial antioxidant content. The oil-extended GR-S contains 1.25% stabilizer on the polymer content only, excluding the oil. There is some difference of opinion whether the stabilizer content should be calculated on the polymer only or polymer plus oil. Some compounders believe that oil-extended polymers are deficient in stabilizer and follow a practice of adding additional antioxidant to offset the oil. Since wax is soluble in the oil used in the extended polymer, considerably more is needed to insure sufficient to form a protective surface coating on the rubber as well as to saturate the oil.

Question—Do you want a protective material, such as an antioxidant, to prevent or permit breakdown of GR-S during processing?

Answered by Mr. Maassen: The answer to the question is probably that the antioxidant is there to do both, namely, to prevent chain scission and to prevent cross-linking. One would expect that mechanical breakdown at low temperature permits chain scission to take place at a greater rate than cross-linking. If breakdown is made at a higher temperature, the rate of cross-linking would be faster than the rate of chain scission and, therefore, a tougher polymer will result.

Answered by Mr. Davis: It would unquestionably facilitate the manufacture of some products made from GR-S if the stabilizer or protective material permitted the breakdown of GR-S during processing. However, weak antioxidants in most cases are weak stabilizers and the gel reaction often appears to proceed faster than the oxidative breakdown and hardening results, particularly at high processing temperatures. Materials containing diphenyl paraphenylene diamine and even some phenolic antioxidants will prevent gel, thereby facilitating processing under some conditions.

Question—Is the need for protective materials greater or less with the change from EPC to HAF to ISAF and to SAF?

Answered by Mr. Maassen: These products can be put into two classes, namely, channel and furnace type blacks. It can then be said that for oxidation tests conducted on samples in a relaxed position, in general the channel types of black require more antioxidant than the furnace blacks. So far as protection when samples are bent or flexed is concerned, the amount of protective material increases with the amount of structure in the black, the degree of structure being manifest by modulus changes. However, if blacks are compared so that the compounds in which they are used have similar modulus properties, the amounts of protective material necessary are essentially the same. Stated in another way, the need for changes in amount of protective materials for various grades of black is due to the physical characteristics developed in the compound rather than upon the chemistry of the carbon blacks.

Question—What is the most widely accepted theory explaining the action of antioxidants? Do antioxidants function differently in their protective action? Do benefits accrue from using smaller amounts of several antioxidants instead of a larger amount of one antioxidant?

Answered by Mr. Neal: This question can be most readily answered if it is preceded by another question. What is the most widely accepted theory of the mechanism of the oxidation of an elastomer? It is believed that the answer to this question is that the oxidation of a high polymer is a free radical chain reaction. If this theory is accepted, then all antioxidants function by interfering with the initiation or propagation of the chain or of chain transfer.

However, in any single oxidation there are many different types of free radicals which can be postulated, all of which probably exist, although to varying degrees. To mention only a few of them, we must consider the alkyl-free radical, which is usually written R; the peroxy-free radical, generally written ROO·; the alkoxy-free radical, generally written RO·, the hydroperoxy-free radical, generally written HOO·, and the hydroxy-free radical, generally written HO·. Of these, the first three are probably predominant in the oxidation of rubber. The antioxidant then functions by destruction of any of these free radicals and almost undoubtedly the different classes of antioxidants are most effective in destroying different ones of these free radicals.

This theory will, therefore, explain the known fact that synergistic effects have been well established by the use of combinations of antioxidants. Particularly noteworthy is that obtained when small amounts of diphenyl paraphenylene diamine are added to antioxidants such as phenyl naphthylamines or the ketone-amine reaction products.

As a general answer to the last part of the question, therefore, one may say that benefits do not always accrue from using small amounts of several antioxidants instead of a larger amount of one, but frequently very beneficial effects are obtained from such combinations.

Question—Are materials that are effective protective agents in one of the diene rubbers also equally effective in natural rubber, GR-S, nitrile rubber, etc.?

Answered by Mr. Davis: Many of the protective agents for one diene rubber are also protective agents for the other rubbers, but they are not equally effective in each rubber. In the case of antioxidants having good activity in natural rubber, they also show good activity in the other rubbers, although the extent of the protection may not be the same in each rubber. Antioxidants with low activity in natural rubber in general show low activity in the other diene rubbers. In evaluating a protective agent in one rubber, a trend of its protective action may be indicated, but its exact protective value in other rubbers cannot be learned by evaluating material in only one rubber.

Question—Why does ozone produce less cracking of neoprene than natural rubber although ozone reacts more readily with it?

Answered by Mr. Neal: Although the cracking of an elastomer has been definitely correlated with attack by ozone, there is very little evidence that the extent of cracking can be definitely associated with the amount of ozone attack. For example, natural rubber stocks do not show cracking unless the ozone attack takes place when the rubber is in a condition of strain. But this does not mean that the ozone does not attack the rubber in the unstrained condition.

While it is possible to carry out an ozone analysis of neoprene, as exemplified by the work of Mochel in establishing structure, it should be remembered that these tests have been carried out in solution. Under these conditions there is no question that ozone reacts readily with neoprene although it may be questionable whether or not the speed of reaction is greater than that for natural rubber. However, this type of an experiment represents a rather particular case and it is dangerous to correlate these results with the effect on a practical neoprene compound. For example, it is well known that ozone in common with most other gases is far less soluble in neoprene than it is in either GR-S or natural rubber.

The lack of cracking of a practical neoprene compound can well be due to the fact that either the ozone, through lack of solubility or because of a skin effect, cannot get into the solid neoprene compound to effect degradation or to the fact that ozone attack of neoprene, even in strained condition, does not produce the same effects that are found in natural rubber.

Question—In what way do antioxidants as a class act as both activators of acceleration and age resistance, and what is the chemistry of the reactions of both of these functions for phenyl alpha naphthylamine in neoprene and zinc mercaptobenzothiazole in rubber?

Answered by Mr. Neal: There is no evidence that phenyl alpha naphthylamine acts as an activator in neoprene compounds. Therefore, the answer to this question will be restricted to the effects of the zinc mercaptobenzothiazole in natural rubber. The answer can actually be broadened to include any of the thiazoles. There are two ways in which materials of this nature can act both as activators of acceleration and as antioxidants, but first and probably most important is that regardless of what happens to the thiazole during the vulcanization process, almost undoubtedly the basic ring structure of the thiazoles still remains in the accelerator residue. In fact, part of the accelerator may remain completely unchanged.

It has been clearly established by Le Bras and others that such structures as mercaptobenzothiazole have a very definite antioxidant effect in rubber. It should also be remembered that the mechanism of the vulcanization of rubber has not been thoroughly clarified. It is quite likely that many different chemical reactions take place and it would be surprising if all the structures present in a piece of vulcanized rubber had the same degree of resistance to oxidation. Therefore, it is always possible that part of the antioxidant effect of the thiazole may be associated with the fact that when these materials are used as accelerators, the type of structures which predominate in the vulcanizate are those which are the more resistant to oxidation.

Question—What suggestions do you have for protection against 350° to 400° F. oil and dry heat aging in nitrile rubber compounds?

Answered by Mr. Maassen: The best recommendation is a sulfurless cure so long as heat is applied in the absence of oxygen. If oxygen is present, no method is known for preserving the nitrile rubber at these temperatures.

Question—Do antioxidants serve to improve the resistance to tread cracking and heat in natural rubber and GR-S treads?

Answered by Mr. Baker: The answer is yes, especially in the case of natural rubber. The judicious use of the proper antioxidant in natural rubber treads most certainly enhances the resistance to tread cracking and flex cracking as well as deterioration due to heat. In the case of GR-S we have the antioxidant that was added at the polymer plant. The effect of added antioxidants will not show the degree of improvement that would be obtained in natural rubber. If we are to encounter ozone deterioration, then we would most certainly want to add a good antiozonant to both natural rubber and GR-S.

Question—Is there a relationship between weathering and flex cracking? What type of antioxidant is best for retarding these conditions? Why do some materials markedly improve resistance to weathering, yet have a detrimental effect upon flex cracking?

Answered by Mr. Baker: In the case of sidewalls, there is probably some relationship between weathering and flex cracking in many compounds, but not necessarily in all of them. In most cases, the same general factors enter into the cause of weathering and flex cracking, but the results are not always the same from one stock to another. One of the best type materials to use is one that will migrate readily and form a protective surface. The use of a blooming wax with such an antiozonant material will usually show to advantage over just a straight antiozonant if both static and dynamic conditions are encountered. It is true that waxes usually offer fairly

good protection from weathering if they bloom to the surface and form a protective film and the conditions of service are static. But, if the conditions change from static to dynamic, the wax film will rupture and this seems to channel the destructive force of the ozone to the point of film rupture, which starts a crack.

Question—It is necessary to have the following properties in a pure gum rubber product: (1) Copper resistance equivalent to AgeRite White; (2) Non-pinking in bleaching baths; (3) Non-staining or tarnishing to synthetic fabrics; (4) Ozone or sunlight resistance. What recommendations can you make to approach these properties?

Answered by Mr. Davis: Those are very tough requirements and we know of no protective agent or agents which can completely meet all of them. Our recommendation to approach these properties is to use Antioxidant 2246 or Antioxidant 425, and if the product can tolerate some wax also use some good microcrystalline wax for ozone protection.

Question—What materials can you suggest for use to prevent the glazing and the getting-slippery-on-the-surface feeling of a light colored floating gravity stock upon exposure to sunlight?

Answered by Mr. Davis: The glazing and slippery surface effect which develops upon exposure to sunlight is not confined to floating gravity stock. We know of no material to eliminate this condition. If the antioxidants and waxes or other materials which protect the rubber against surface oxidation induced by light are omitted, the surface becomes crazed and rough upon exposure to sunlight.

Question—In applications where rubber retains its uncured state in service, as in the case of can closures and the like, will antioxidants impart benefits or extend the useful life of these articles?

Answered by Mr. Davis: Yes, antioxidants do impart benefits and extend the service life of some uncured rubber articles.

Question—What are considered the best non-staining antioxidants for natural rubber, for GR-S and for neoprene?

Answered by Mr. Neal: The predominance of evidence seems to indicate that there is no great difference between natural rubber, GR-S and neoprene with respect to the effectiveness of the non-staining antioxidants. Where essentially no discoloration can be tolerated in a stock, the best antioxidant to use appears to be one of the more recently discovered hindered phenols. Such products as Antioxidant 2246, Antioxidant 425 and Santowhite Crystals come into this category. In cases where some slight amount of staining can be tolerated, products such as Antox, AgeRite White, Flexol H. Stalite, and Octamine have provided adequate protection. In neoprene stocks where both heat resistance and minimum discoloration are the requirements, tests have indicated that Octamine is an exceptionally good material.

Question—Can you rate the three best antioxidants for foam rubber, relative to the following: (1) Staining fabric and lacquer finishes; (2) Discoloration, and (3) Heat aging?

Answered by Mr. Cutting: Alkyl, aryl and alkyl-aryl substituted phenols and some of their reaction products are the only materials that will meet the requirements of non-staining to fabrics and lacquer finishes and non-discoloration. This does not mean that they have the greatest protective value. Disregarding discoloration and staining, certainly most of the secondary aromatic amines give excellent heat aging.

Question—What materials, if any, would eliminate or retard the ultraviolet discoloration of light colored neoprene, nitrile rubber or natural rubber compounds?

Answered by Mr. Davis: Some light colored stocks are more susceptible to discoloration by ultraviolet light than others, depending upon the accelerators, fillers, softeners, protective agents, etc., used in the stock. In the case of white natural rubber stocks, substantially higher amounts of zinc oxide than required for activation appear to contribute to decreased discoloration on exposure to light. In the case of white GR-S and Neoprene W stocks, a good non-discoloring antioxidant, such as Antioxidant 2246, has been observed to give less discoloration upon exposure to light than when no stabilizer or antioxidant is used. However, we know of no materials which will eliminate completely the ultraviolet light discoloration even with the best light resisting stocks.

Question—Are the protective actions of antiozonants and the degradation effect of ozone ionic or free radical reactions? Is the site of ozone attack on rubber a double bond only, or is the alpha methylene group involved? Can the action of ozone on rubber be separated from that of oxygen, water and sunlight?

Answered by Mr. Neal: Probably the greatest authority on reactions of ozone with organic chemicals is Rudolph Criegee of Germany. Work has indicated that the reaction of ozone with organic chemicals is almost always an ionic reaction rather than a free radical reaction. Surprisingly enough, ozone itself has very little tendency to abstract hydrogen from an organic radical. Most free radical reactions involve at some stage in their process, the abstraction of a hydrogen from some radical. With this background it would be surprising if the action of ozone on rubber was anything other than an ionic reaction.

Although it is possible that ozone can involve the alpha methylene group, the evidence is quite strong that by far the majority of reactions involves the double bond only. With both natural rubber and neoprene, the end product of an ozonolysis is the dicarboxylic acid which would be expected if the attack were solely on the double bond. Only minute traces of those end products which would be expected from attack on the alpha methylene group are found.

From a theoretical standpoint, it would be entirely possible to separate the action of ozone from that of oxygen, water, and sunlight. However, from a practical standpoint, rubber products are almost never subjected to one of these influences alone and in studying, for example, the end product of weather-

ing it does not appear feasible to try and separate the action of these four variables. Each one has not only an effect by itself, but also a marked effect on each of the others. For example, the action of ozone will be markedly influenced by the question as to whether oxidation has preceded, followed, or been coincident with the attacks by ozone.

Question—What is the best mechanism for explaining the phenomenon of ozone cracking which takes into account the requirement of having at least some stress in the rubber?

Answered by Mr. Baker: It is known that rubber must be under a stress in order to obtain ozone cracking to any degree. It is probable that while under stress the cohesive forces between the molecules of rubber are destroyed by ozone attack and this destruction is progressive in the stress area. The ozone attack on these cohesive forces probably is associated with the double bond and results in saturation of these double bonds, which destroys the cohesive forces and causes a minor crack at first; then the process is progressive.

Question—Does the protective action of antiozonants, such as Santoflex AW, NBC and dioctyl paraphenylene diamine, have any connection with the formation of a protective bloom, or is a chemical mechanism involved, or both? Is this protection permanent or is the antiozonant destroyed by the ozone? Is it true that an antiozonant may be excellent in one type of rubber and very poor in another?

Answered by Mr. Baker: These materials are capable of migration and so form a barrier at the surface of the stock which does react with ozone to some extent at least. Santoflex AW, NBC, and dioctyl paraphenylene diamine do migrate, as is evidenced by the formation of a typical brown surface on the rubber when subjected to an atmosphere containing fair amounts of ozone. To the best of our knowledge, there is a slow breakdown in the protection offered by any antiozonant and this must be compensated by the migration of fresh material from the interior of the stock. It is true that an antiozonant may be excellent in one type of rubber and very poor in another.

Question—Why does dioctyl paraphenylene diamine protect GR-S and not natural rubber from ozone attack?

Answered by Mr. Maassen: An antiozonant will protect the polymer when it has limited solubility in the polymer and thus exhibit a slow migration to the surface to form a protective coating. It is possible, therefore, that dioctyl paraphenylene diamine will protect GR-S and not rubber because of differences in solubility and migration rates.

Question—Explain the action of antiozonants in comparison with antioxidants and waxes. Is the apparent difference between antioxidant and antiozonant physical or chemical?

Answered by Mr. Maassen: First, we should consider the antioxidants and the antiozonants. There is no distinct line between antioxidants and antiozonants because several antioxidants when used in greater amounts than those ordinarily employed for the usual antioxidant needs are fairly satisfactory antiozonants. Ozone itself has a much more drastic effect on the physical properties of rubber than does oxygen. It is quite generally agreed that if the double bonds on the rubber molecule could be bound with materials other than oxygen there would be no degradation. Since ozone is more reactive than oxygen, it means that something more than the conventional type of antioxidant is necessary to protect the unsaturated bonds of the polymer molecule from ozone attack. We believe that the difference between antioxidants and antiozonants is essentially chemical. As to waxes, they are usually saturated paraffinic compounds and are therefore unaffected by exposure to ozone. Waxes, of course, can function only if they are sufficiently insoluble in the polymer to exude to the surface to form a continuous barrier between the ozone and the polymer. For the most part, waxes are good only for static service.

Question—Is there a simple, cheap, dependable apparatus for testing ozone resistance of tire sidewalls in service? How well does laboratory aging of samples in oxygen bombs in air at 125°, 212° and 250° F. and ozone weathering correlate with tire service at normal or climatic conditions?

Answered by Mr. Cutting: No standard apparatus is available at present. Any apparatus that operates dynamically in the outdoor air with an elongation cycle of the order in service, say 0 to 25%, will be quite suitable. Some laboratories prefer strips run over a pulley. If an ozone atmosphere is used, the ozone should be kept down to that commonly present in the atmosphere, say not more than 10 parts to 100 million maximum. The Kemp-Crabtree ozone box is being studied in a round robin ASTM test series, but results are erratic and possibly should be used mainly as a screening test.

Oxygen bomb tests do not correlate with any tire service. The Geer oven at 158° F. probably comes closest. The 212° and 250° F. air agings may correlate with some types of service. Temperatures vary within a tire and, therefore, a laboratory test where temperature is held constant will not correlate with service conditions. Temperatures of 250° F. are common in large size truck tires and natural rubber tire stocks fail rapidly in air oven tests at 250° F., but we know tires give good service at these high temperatures. Ozone weathering can be determined experimentally in an ozone box under dynamic conditions if the ozone content is held down to reasonable limits.

Question—Are there any antiozonants for sidewalls that do not lose effectiveness due to high temperatures encountered in ordinary Banbury mixes? Or, can volatile loss be reduced to give more protection at lower costs?

Answered by Mr. Cutting: The answer to this question is probably "no." Abnormally high mixing temperatures may cause loss of effectiveness of the antiozonant either by oxidation or volatile loss. The antiozonant seems to be a little more effective if incorporated into the batch at a point where the temperature will not be at the peak temperature of the mix.

Question—Do antioxidants have specific properties in resisting sun and ozone? Do some antioxidants promote while others retard ozone and sun checking? Can you compare static and dynamic tests with sun and ozone and also Southern California with the Eastern United States?

Answered by Mr. Neal: With respect to natural rubber and GR-S, the majority of commercial antioxidants available have little or no effect on either ozone or sunlight resistance. Some tests have indicated that, particularly when used in amounts in excess of their solubility limits in these two elastomers, diphenyl paraphenylene diamine and Stabilite have at least a measurable beneficial effect on ozone resistance.

In general, it is difficult to compare the static and dynamic tests on sun and ozone resistance because the dynamic tests are generally so much more severe than the static tests. It is probably not too strong a statement to say that if materials can be developed which will give outstanding performance in dynamic tests for ozone or sunlight resistance, it will be almost impossible to obtain failure in stocks containing materials in a static test.

A large number of tests have been conducted in an attempt to evaluate the relative severity of various parts of the country as exposure stations for ozone testing. Only one clear cut conclusion can be drawn from this test, namely, that there is no single answer to the question. In recent tests we carried out, in which samples were exposed in Los Angeles, Florida, and in Wilmington, Delaware, it was found that exposure in Los Angeles was approximately twice as severe as exposure in Florida and exposure in Florida was somewhat more severe than exposure in Delaware. However, there is no assurance that other equally valid tests would not give a different result.

Question—What are the most effective antiozonants for GR-S and natural rubber sidewall stocks?

Answered by Mr. Baker: The most effective antiozonants for GR-S sidewalls are the paraphenylene diamines, such as UOP, Bayer 4010 or a trimethylene quinoline type, such as Santoflex AW. The latter is also an effective antiozonant for natural rubber sidewalls.

Question—What antiozonants are recommended for nitrile rubbers?

Answered by Mr. Baker: In general, the same type of antiozonant is recommended for nitrile rubber as for GR-S. The protection obtained with these antiozonants may be of different magnitude when used with nitrile rubbers than with GR-S. I believe that antiozonants are somewhat less effective with nitrile rubber than with GR-S.

Question—Why does exposure of a stretched rubber to sunshine inhibit ozone attack?

Answered by Mr. Davis: It has been pretty well established that the susceptibility of rubber to ozone attack is a consequence of the chemical unsaturation. If the unsaturation is eliminated, the susceptibility of ozone attack is removed. If a stretched rubber sample is exposed to sunlight in air free from ozone, a film of saturated material is formed on the surface of the rubber and this will protect the rubber sample against ozone attack when exposed to an atmosphere containing ozone, provided this film is not broken by flexing prior to exposing to the ozone atmosphere.

Question—Are aromatic oil extenders superior to paraffinic types with regard to the ozone resistance of oil-extended GR-S?

Answered by Mr. Maassen: In general, oil-extended GR-S does not weather as well as the non-oil extended GR-S or natural rubber. There is little to choose from between aromatic and paraffinic type extenders so far as weather performance is concerned.

Question—What is considered the critical melting point of a wax for tire sidewalls? How does the wax afford protection in tire service?

Answered by Mr. Cutting: There is no critical melting point of a wax for tire sidewalls. Waxes vary considerably in their effectiveness and two different waxes of the same melting point may vary in their effectiveness. In general, for any given type of wax, the higher melting point wax is most effective during summer exposure while the lower melting point wax is more effective during cold weather. In cold weather, dynamic cracking is more serious than static cracking, and in summer the static cracking becomes poorer and dynamic cracking improves. Wax affords protection by blooming to the surface to form a continuous film.

Question—What effect do waxes have on mold flow?

Answered by Mr. Cutting: Waxes act as moderately effective release agents. They also melt at curing temperatures and plasticize similar to a medium processing oil. Both effects tend to improve mold flow.

Question—Is it better to use a blend of waxes or a straight wax for weather protection? Do blends impair the rate of blooming?

Answered by Mr. Maassen: The choice of waxes would be dictated by service conditions required. Paraffin wax is a good stable wax and will afford good protection, yet it does develop a very brittle surface. Despite the low cost of paraffin, more costly blended waxes, such as combinations of paraffin and microcrystalline waxes, are used in many instances because they have certain desirable properties which paraffin does not have.

Question—Are there methods for measuring quantitatively the solubility and the rate of bloom of waxes from rubber compounds?

Answered by Mr. Neal: No well-authenticated method is known for measuring quantitatively solubility in and the rate of bloom of waxes from rubber compounds. A suggested method might be the one which has been applied in the past for the measurement of the solubility of chemicals in elastomers. In carrying out this test, a range of wide quantities of the wax would be milled into the elastomer involved until a satisfactory dispersion was obtained. Finished sheets of those stocks would be placed be-

tween two microscope slides and heated in a 140° oven until complete solution took place.

After complete solution the slides would be stored at room temperature and examined periodically under the microscope for signs of separation, that is, lack of normal transparency. The present solubility is calculated as that of the largest quantity of chemical that did not cause opaquences in this test. To the best of our knowledge this method has never been applied to waxes, but it would appear to be a possible method for obtaining quantitative information.

Question—What are the advantages of each of the various groups of waxes used to prevent weathering in natural or synthetic rubber compounds?

Answered by Mr. Cutting: The term "various groups" needs better definition. In considering vegetable and mineral waxes, the former has shown very little value. Mineral waxes, such as petroleum distillate and residual waxes, vary widely in their effectiveness. In general, service tests or simulated service tests have been found the best criteria. Physical properties, such as melting point, etc., are not reliable guides to the value of a wax as a preventative for weathering.

Question—How can the frosting of light colored products, i.e., tire sidewalls, be eliminated without the use of heavy wax films on the product surface?

Answered by Mr. Davis: Since frosting has not been a problem to all segments of the rubber industry, there are many who have had little or no experience with frosting, so that a little explanatory information may be helpful. Frosting appears somewhat like a light colored to whitish bloom on the surface of light colored rubber products, particularly natural rubber products, during humid summer weather. It begins to appear usually soon after the product is cured when the humidity is high. However, it is not limited to cured products and has been found on the surface of unmilled and uncompounded natural rubber exposed to humid summer atmosphere indoors.

Frosting has been found to be due to the ozonization of the rubber hydrocarbon promoted by humidity in the atmosphere. Observations in the laboratory and factory have shown that frosting begins and develops to a limited extent at room temperatures when the absolute humidity is 0.01 pounds of moisture vapor per pound of dry air. It develops rapidly and very extensively over the product surface when the absolute humidity is 0.015 to 0.018 pounds of water vapor per pound of dry air which is not uncommon during the summer months. Frosting does not appear to occur when the absolute humidity is 0.005 pounds of water vapor per pound of dry air. Temperature is also a factor in frosting as it is in other chemical reactions.

Surfaces of rubber products treated to reduce the unsaturation or chemical reactivity of the rubber show improved resistance to frosting. Frosting is usually eliminated without heavy wax films by a combination of a small amount of wax, say ½% of Heliozone or Sunproof, plus 1% of Antioxidant 2246 or Antioxidant 425.

Question—How does the incorporation of a wax in a compound affect the flex characteristics?

Answered by Mr. Baker: The incorporation of a wax in a compound will usually have an adverse effect on flexing, if the percentage of wax is significant. One to two percent of most waxes will usually begin to show up in flexing. Higher amounts get worse as a rule. There may be some waxes which do not show an adverse effect on the flex characteristics of a stock, but I am not familiar with them.

Question—Is there any experimental evidence that certain waxes preferentially carry antioxidants to the surface of rubber goods and increase ozone resistance? If so, what are some of these waxes?

Answered by Mr. Baker: There is experimental evidence that certain waxes preferentially carry antiozonants to the surface of the rubber goods and increase the ozone resistance. Perhaps the most common wax is paraffin. Usually a paraffin with a 135° to 145° F. melting point is preferred. If too high or too low a melting point wax is used, there seems to be a distinct lowering of the protection offered.

Question—What types of waxes are best for use in natural rubber, GR-S and neoprene in electric wire insulation for outside weather conditions?

Answered by Mr. Neal: Electric wire insulation designed for outside weather conditions should always be made from neoprene. Even the poorest neoprene stock will give far greater service life under these conditions of exposure than the best natural rubber or GR-S stock. All such insulations should contain wax, and experience indicates that the best material to use is one of the proprietary waxes which are composed of a mixture of microcrystalline waxes and the amorphous type waxes. These compositions are particularly good in affording adequate protection under both summer and winter types of exposure. Next to the combinations of waxes, the microcrystalline waxes provide the greatest amount of protection. There are many of these available, particularly from the various oil companies. The so-called amorphous type waxes will provide protection, but in general are considerably inferior to the microcrystalline type for this purpose.

Question—Are there any advantages in using paraffin over other waxes in Butyl rubber compounding?

Answered by Mr. Cutting: Butyl has good inherence over ozone resistance. Any additional protection is probably very well taken care of by a proven paraffin wax.

Question—Does the presence of high oil loading in the black sidewall affect the solubility and effectiveness of waxes?

Answered by Mr. Maassen: The presence of high oil loading in the black sidewall does affect the solubility and effectiveness of the wax. The oil solubilizes the wax and prevents it from blooming to the surface. Oils having a high aromatic component solubilize the waxes more than those of high paraffinic component. Some automotive channel rubbers made from oil-extended GR-S contain as much as 20 parts of wax in order to have a sufficient quantity to bloom on the surface. In general, it can be said that oil-extended polymers do not weather as well as the unextended polymers.

Question— Does chlorinated paraffin provide ozone resistance? If so, how?

Answered by Mr. Neal: Although no exhaustive study has been made, attempts to use chlorinated paraffin to provide ozone resistance in elastomer products apparently have been unsuccessful. This is probably due to the fact that their solubilities are such that it is difficult to get a continuous film on the surface. From a theoretical standpoint, it is difficult to see any reason why a continuous film of a chlorinated paraffin wax should not provide as good ozone protection as a continous film of an unchlorinated wax.

Question— Why are blends of paraffin waxes superior to the so-called crystalline waxes in ozone protection?

Answered by Mr. Cutting: Blended waxes are superior to straight waxes because various properties can be built into the blend. Both distillate and residual waxes are crystalline in structure. The former crystallize in plate form and the latter in fine microcrystals. As stated in the answer to a previous question, the final value of any blend must be based on performance.

Question— What effect do waxes have on the aging of latex foam rubber with regard to light and physical properties?

Answered by Mr. Neal: When foams are produced from GR-S latex, and to a somewhat lesser extent those produced from mixtures of GR-S and natural rubber latex, the presence of wax in the formulation will tend to cut down cell wall attack and thereby increase the resistance to compression set, thus insuring an improvement in physical properties. Probably due to the emulsification systems present, such effects are not nearly as pronounced with foams made from natural rubber or from neoprene latex. Foams are very seldom exposed to sunlight or ozone in a strained condition. Therefore, it is not surprising that no evidence has been forthcoming to show that the presence of these waxes has any real beneficial effect on the age resistance of foams when it is exposed to light and ozone.

Question— What is a good antioxidant for copper resistance and what is the method of testing for copper resistance, especially in latex foam?

Answered by Mr. Maassen: The best antioxidant for copper inhibition is AgeRite White. I might say we have worked out combinations using about a quarter of one per cent of AgeRite White with one half to three fourths per cent of AgeRite Spar which will also give good results. One method of test is to put the foam between two pieces of copper and age them in an oven that way.

Question— Will a silicon oil applied to the surface of rubber tires and gaskets help in preventing the deterioration of the rubber by ozone or ultraviolet radiation?

Answered by Mr. Maassen: As measured by exposure in an ozone generator, there is evidence that coating the cured rubber with silicon is of some help in protecting against the effects of ozone.

Answered by Mr. Baker: Silicone mold lubricants offer some ozone protection for natural rubber if applied after cure. This is true in both static and dynamic conditions. I am not certain about GR-S protection or if a silicone mold lubricant will protect against ozone if it is used as a mold wash.

Comment by Mr. Maassen: I might add that we did some work using the silicone mold wash as a protective agent and according to the test we ran the silicone when used as a mold wash did not afford protection comparable to what was secured by coating the sample with silicone after cure.

Question— Have you noticed any undesirable physiological effects from the use of AgeRite Alba?

Answered by Mr. Maassen: There have been reports, particularly from colored people, who have suffered from depigmentation of the skin, and all of the people who are supplied with AgeRite Alba are so informed. Other than that we have not had any particular difficulty.

Answered by Mr. Neal: I think that it has been quite well established that there has been no deep seated physiological effect noted with this material. It has been a depigmentation of the skin, but on removal from contact it is a temporary affair and no permanent effects have been recorded.

Question— At what temperature are the various waxes really soluble in the various polymers?

Answered by Mr. Cutting: Generally speaking, I believe somewhere around 100° F. is the point, although it varies somewhat. I think that with GR-S it is probably a bit higher, about 120° F.

Hysunite Acid Handling Hose

The Industrial Products Division of the Goodyear Tire & Rubber Co., Akron 16, Ohio, has developed a new acid handling hose called "Hysunite" that is designed to handle heavy concentrations of three highly corrosive acids: sulfuric acid up to 96% concentration, nitric acid up to 70% concentration, and chromic acid up to 100% concentration. Results of extensive field testing are said to show that the work life of Hysunite hose—handling high concentrations of the above-mentioned acids—is measured in months, while conventional acid hose lasts but a few hours when conducting these acids.

Solid Coal Mine Tire

U. S. Rubber Co., 1230 Avenue of the Americas, New York 20, N. Y., has announced a demountable, solid rubber tire for coal mine shuttle cars that is said to double tire life, allow higher speeds and eliminate unexpected tire failures. Called the "U. S. Royal Mine Cushion," the tire has a smaller outside diameter than conventional pneumatic tires, thus reducing the height of the shuttle cars and allowing higher loads to be carried. Three sizes of the new solid tires are designed to replace six sizes of pneumatic tires now widely used on shuttle cars in low seam coal operations. The tire can also be used on bolting, drilling and cutting machines.

Plymaster V-2—A Glass Mat-Supported Adhesive Film

A NEW metal-to-metal or metal-to-plastics adhesive in film form supported on a glass reinforcing mat has recently been developed by the Rubber & Asbestos Corporation, Bloomfield, N. J. Called Plymaster V-2, it is claimed that strengths of up to 40 pounds per inch in peel, accompanied by tensile shear strengths of over 2,000 psi, can be obtained with this new, easy-to-use type of adhesive formulation.

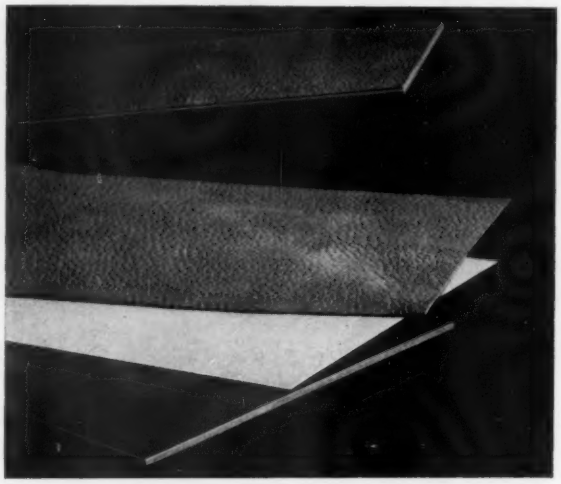
Although the new adhesive film was originally developed for use as a latent adhesive for bonding metal skins to paper or to metal honeycomb cores in "sandwich" construction, its high peel strength together with the new speed, efficiency and economy which are now possible through the application of an adhesive in film form make it equally advantageous, the manufacturer reports, for a wide range of other flat surface bonding combinations such as metal-to-metal, vinyl sheet to steel, reinforced plastic decorative laminate to aluminum, rigid phenolic or polyester sheet to metals, etc.

Ordinary scissors may be used to cut the new Plymaster V-2 film to any required size and shape for the specific bonding operations involved. Adhesive pick-up on the reinforcing base glass mat is approximately 5 ounces per square yard. Full thickness of the supported film is approximately 11 mils although glue lines as thin as 1½ mils can be obtained by applying pressure in making the bond.

Adhesive "flow" will be obtained in the vicinity of 200°F. Application methods prescribed by the manufacturer are said to produce metal-to-metal bonds with excellent peel strength of up to over 40 pounds per inch, accompanied by shear strength in excess of 2,000 psi.

While maximum physicals involve a curing cycle of 300°F. for 10 minutes with pressure of about 50 psi, variations in time down to 5 minutes or less and in pressure down to 10 to 12 psi may be used. Where desirable, the film may also be solvent or adhesive primer reactivated to yield sturdy bonds at room temperature and mere "contact" pressures.

Plymaster V-2 adhesive film is available in 36-inch widths, standard, in 100 yard rolls.



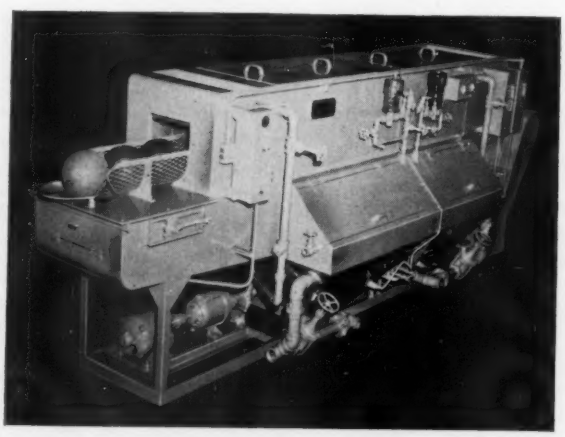
Top assembly shows polyester board bonded to aluminum which, in turn, is bonded to heavy gauge vinyl with Plymaster V-2 glass mat-supported adhesive film. Bottom unit illustrates "sandwich" set-up of vinyl, V-2 film and aluminum before bonding.

Industrial Washing Machine Cleans Basketballs at Spalding Plant

THE problem of removing mold lubricant, rubber dust, talcum and mica from rubber basketballs and softballs has been solved by the installation of a new type industrial washing machine at the Chicopee, Mass., plant of A. G. Spalding & Bros., Inc., well-known sporting goods manufacturers. The machine, designed and built by the Industrial Washing Machine Corp., Matawan, N. J., processes 150 basketballs per hour or 450 softballs per hour.

The difficulties involved in cleaning the entire surface of spherical objects have been eliminated by the special design of the machine which rotates the balls as they are carried through a trough by mechanical fingers. Powerful chemical sprays play upon the balls and remove all traces of lubricants, dust and dirt, followed by a rinsing spray which removes the chemicals.

The machine is 15 feet long; 3 feet, 9 inches wide; and 5 feet, 5 inches high. Designated Model CT 12 x 12 WR, it is heated by steam, but the same type machine may be heated by gas or electricity. Other machines, using the same principles, have been designed by the Industrial Washing Machine Corp. for handling different rubber goods items, including milking machine attachments.



Machine used for washing basketballs.

Editorials . . .

Rising Prices

AT THIS WRITING the price of natural rubber, on the basis of No. 1 Ribbed Smoked Sheet, is rapidly approaching the 50-cent-a-pound mark. There is no evidence at the moment of any check in the upward trend and, what is more significant, as the price structure increases the extent of the daily advances are becoming greater. That domestic rubber manufacturers are considerably concerned with the price situation is evident from the fact that tire prices have already been advanced and increases on foamed latex products have just been announced.

Our telephone is busy these days with questions concerning the whys and wherefores of the advancing price structure. Although there are numerous factors involved, as there always are where so sensitive a commodity as rubber is concerned, the basic reason is fairly simple, namely, ye ole debbil supply and demand. As previously indicated in these columns, consumption of new rubber in the United States this year will exceed 1,450,000 long tons and, unless there is a relatively drastic cutback in November and December, may even approach 1,500,000 tons. While rest-of-the-world demand is not matching the consumption trend in the United States, it is considerably higher than last year.

There is one certain means of bringing about a radical change in the over-all rubber situation and that would be a release of natural rubber from the government stockpile. Such a move has already been proposed by two of our leading rubber executives, namely, John L. Collyer, board chairman of the B. F. Goodrich Co., and Thomas Robins, Jr., president of Hewitt-Robins, Inc., the country's largest non-tire rubber company. Mr. Collyer urged "the orderly sale of a minimum of 200,000 tons of crude rubber" while Mr. Robins called for the release "of about 15 per cent of the stockpile." Mr. Collyer estimated that the total tonnage of natural rubber now in the United States is approximately 1,300,000 long tons, of which some 900,000 tons are in the stockpile.

Although there is a legal loophole by means of which the government could release all or any part of the emergency rubber stockpile, we rather suspect that the worthy gentlemen mentioned above had their tongues-in-cheek in proposing such release. Actually, as pointed out by the Office of Defense Mobilization, the Stockpiling Act requires a six-month advance public notice of any disposition from the stockpile. Further, the notice must include a plan for disposal, including measures for "the protection of producers, processors and consumers against avoidable disruption of their usual markets." The legal loophole? The Korean war has never been legally terminated, and accordingly the Administration could legally sell rubber from the stockpile under its "emergency" powers.

We are in complete sympathy with the desire of the rubber manufacturing industry to halt the spiral in the price of natural rubber and see an immediate return to "reasonable" prices. We must put the term "reasonable" in quotes, because there never has and never will be an agreement between producer and consumer as to such a price. However, once the domestic synthetic rubber industry gets into high gear under its new private ownership, we are reasonably convinced that prices for both natural and synthetic rubber will find a "reasonable" level. We suspect this level will be above the present price of GR-S types, but certainly below the present price of natural rubber.

Whatever the price trend at the moment, we believe it would be a mistake to release rubber from the natural rubber stockpile for the sole purpose of breaking a high price market. Although the Natural Rubber Bureau is biased in its opinions, we are in accord with its statement that no act of the United States Government could secure more ill will for this country throughout Southeast Asia. Despite substantial gains made by the British against communistic advances in Malaya, this corner of the world is still a potential trouble spot, and any action by the United States Government to sharply disrupt its economy would not sit well with the people.

Once again we are caught between short-term and long-term positions where rubber is concerned. No single economist or statistician foresaw the tremendous surge in consumption currently being enjoyed by the rubber manufacturing industry. For the short-term period, we will have to pay the higher prices for natural rubber. In the long-term period, there will be sufficient facilities for the production of synthetic rubber to practically guarantee a "reasonable" price for natural rubber. How soon such a point will actually be reached is anybody's guess.

Incidentally, Mr. Collyer made the point that at the present price of natural rubber the Government would recover more than $165,000,000 by selling 200,000 tons of rubber from the stockpile. If the figure of 900,000 tons of stockpiled rubber is correct, this rubber is worth more than $750,000,000 on the basis of the present price. That amount is approximately equivalent to the total expenditure of the government in establishing the war-emergency synthetic rubber manufacturing industry.

Highlights Sidelights *of the News...*

August, 1955

As this issue went to press, the Office of Defense Mobilization revealed that it has turned down requests by two rubber industry executives for early action in freeing a substantial tonnage of natural rubber from the government's stockpile...ODM stated that delays in receiving new estimates of military tire requirements based on revised military programs have put off a complete review of the rubber stockpile program until early fall—some six months later than originally anticipated ...H. C. Bugbee, president of the Natural Rubber Bureau, in commenting on the stockpile situation, stated that stockpile legislation was passed to create a reservoir of natural rubber for use in case of war and not to influence market movements (page 766).

Legislation authorizing sale of the Institute, West Va., synthetic rubber plant has been passed by both houses of Congress and is now before the President for his signature...In consideration of the healthy situation which exists in the synthetic rubber market, several companies have already indicated an interest in the plant (page 719).

Rival Republican and Democratic-sponsored bills for new road building programs were defeated in the closing days of the last session of Congress...The Republican plan, backed by the President, called for the issuance of special bonds which would not have been counted as part of the national debt...The Democratic bill called for increased gasoline, diesel fuel and other "user" taxes to finance the road program (page 721).

Additional details in the continuing battle for control of the Thermoid Co. were recently revealed in a proxy statement issued by the Thermoid Shareholders' Committee ...Sydney Albert, among others is indicated as being a financial backer of a proxy soliciation aimed at electing a new board of directors and stockholder suits recently filed against Thermoid (page 727).

Plans for the large-scale production of synthetic rubber in West Germany have been readied and are awaiting the go-ahead signal...A new plant with an annual capacity of 45,000 tons is planned with production scheduled to get under way by late 1957...The new facility has been assured of sufficient raw materials (page 732).

Truck tires, made entirely of the new synthetic rubber which is said to duplicate the molecular structure of tree rubber, are now in service...Goodrich reports that the new tires are giving mileage and service to compare favorably with large truck tires made of natural (page 731)...Goodrich-Gulf has announced plans to construct pilot plant facilities for production of the new synthetic (page 766).

NEWS REPORTS and Industry Activities

UNITED RUBBER TAKES OVER BAYTOWN FACILITY; CONGRESS APPROVES SALE OF INSTITUTE PLANT

ON July 15, the Rubber Producing Facilities Disposal Commission transferred the government-owned synthetic rubber plant at Baytown, Texas to the United Rubber & Chemical Co., a wholly-owned subsidiary of the United Carbon Co., Charleston, West Va. Documents were signed in Washington, D. C., and the company took over plant operations immediately, paying the government $7,838,078.36. Of this amount, $7,153,000 represented the original bid for the plant. The balance was paid for inventory items and net additions to the plant.

The House, on July 27, passed and sent to the President a bill authorizing the sale of the government-owned synthetic rubber facility at Institute, West Va. The bill, which cleared the Senate the day before, is now before the President for his signature. If the President signs the bill, the Disposal Commission, which was to have officially passed out of existence on August 14, will have a period of sixty days in which to recieve bids and a period of seventy-five days in which to negotiate with bidders. Final contract of sale would be subject to the approval of the Attorney General.

The 44,000 long ton Baytown plant was the twenty-fifth of the twenty-seven government-owned rubber producing facilities sold in the disposal program. Of the remaining two facilities, the alcohol-butadiene plant at Louisville, Ky., was leased to Publicker Industries, Inc., of Philadelphia, Penna., for a three-year period. The remaining facility, the 122,000 long ton synthetic rubber plant at Institute, West Va., has now been approved for sale by Congress, as noted above.

Government Program at End

With the sale of the Baytown plant, the production and sale of synthetic rubber by the government came to an end. During the life of the synthetic rubber program which started in 1942, approximately 7,200,000 long tons of synthetic rubber were produced and sold. This consisted of approximately 6,329,200 tons of general purpose rubber, 670,500 tons of Butyl rubber, 198,200 tons of neoprene, and 2,100 tons of nitrile rubber.

United Rubber & Chemical has pledged 40% of Baytown's output for sale to small business firms, serving these customers through offices about the country.

Several companies are reported to be interested in the Institute facility. Carbide and Carbon Chemicals Co. of New York, N. Y., was one of the first concerns to express an interest in the plant in order to convert it to the production of chemicals and plastics. The Department of Defense and the Office of Defense Mobilization, however, registered strong objections to the sale of the plant for any purpose but the manufacture of synthetic rubber.

Subsequently, as reported in the July issue of RUBBER AGE, the Imperial Commodities Corp., a Dutch-controlled company with huge natural rubber holdings in the Far East, let it be known that it would be interested in securing the Institute plant.

Imperial Commodities is 80% controlled by the Dutch United Deli Companies interests, with natural rubber and tobacco estates in Indonesia. The remaining 20% of Imperial Commodities common stock is held by a voting trust of five persons, three of whom are citizens of the United States. A California corporation with headquarters in New York City, Imperial Commodities is a member of the Rubber Trade Association of New York.

In talks with government officials, representatives of Imperial Commodities stated that if they are permitted to purchase the Institute plant, they will install refrigeration and other facilities to adapt the plant to the production of cold rubber. Present plans call for the operation of only one of the three lines at the plant with the other two maintained in stand-by condition.

Imperial Commodities further claims that it could obtain butadiene from Publicker Industries, which is operating the alcohol-butadiene plant at Louisville, Ky., under lease from the government. The price of the butadiene secured from Publicker, Imperial Commodities states, would be low enough to allow the Institute plant to compete with Gulf Coast rubber facilities which use petroleum-butadiene.

While the price of alcohol-butadiene is normally higher than petroleum-butadiene, Publicker Industries is said to have obtained price concessions on blackstrap molasses—thus allowing it to make its alcohol-butadiene more cheaply.

The Institute plant is currently in stand-by, and the yearly cost for upkeep is certain to be considered by the Congress as sales bills are discussed. If the plant is sold, the buyer would have to agree to maintain the plant for ten years and, if it is not kept up, could be ordered to reimburse the government for putting the plant back in operating condition.

One factor may complicate any sale of the Institute plant to Imperial Commodities. It may be that Congress will not take too kindly to sale of the facility to a company with foreign ties. The next session of Congress beginning in January, 1956, may have to consider this question of policy before any sale contract could be approved.

Other Interested Firms

There have been reports that at least two other companies, General Tire & Rubber Co. and the Minnesota Mining & Manufacturing Co., may enter bids for the Institute plant. Both companies were outbid in previous efforts to buy other government-owned synthetic rubber facilities.

There were also reports that Edwin W. Pauley, California industrialist, may also make an offer for Institute. Mr. Pauley also did not succeed in two previous efforts to purchase a government synthetic rubber plant.

Trade circles expect that in consideration of the tightening of the rubber supply situation, many more companies will enter the bidding for the Institute plant. It must be remembered that since Congress will not reconvene until January, any sales contract for the Institute plant could not be approved before that time. This means that the plant could not be in production by much before Spring of 1956.

SEVERAL NEW APPOINTMENTS ANNOUNCED BY R. T. VANDERBILT CO.

J. S. Corrigal, vice-president of the R. T. Vanderbilt Co., New York, N. Y., has announced several new appointments to the company. William F. Russell has been named director of research of the rubber laboratories with headquarters at East Norwalk, Conn. Dr. Russell has been associated with the company since 1930. During that time he has served as a research chemist and as the first editor of the *Vanderbilt News,* the first issue of which was published on January 1, 1931. Dr. Russell also edited the 1932 and 1936 editions of the "Vanderbilt Rubber Handbook."

He received his Doctor of Philosophy degree from the University of Jena in 1910 and during that same year joined the Diamond Rubber Co., Akron, Ohio, where he served as a research chemist for four years. Prior to joining Vanderbilt, Dr. Russell served as chief chemist of the Norwalk Tire and Rubber Co., Norwalk, Conn. for sixteen years. Dr. Russell was relieved of his editorial duties in 1940 so that he could spend all of his time on what he likes best—research. Dr. Russell is the author of several papers on rubber technology and has had a number of patents issued in his name, one of which was issued in 1923 on the use of stearic acid in rubber compounds.

Assigned to New York

In another appointment, Hugh F. Bethell was transferred from his technical sales territory to the offices of the company in New York City where he will be assistant to Ervin S. Kern in connection with technical sales and service. Mr. Bethell joined the concern in 1945 and served both at the laboratory and in technical sales calling on the wire industry. Mr. Bethell studied chemical engineering at New York University. His experience prior to joining Vanderbilt includes eight years at the Norwalk Tire & Rubber Co., and four years at the General Electric Co. in Bridgeport, Conn.

William F. Abbey has been appointed assistant manager of the rubber laboratory at East Norwalk. Mr. Abbey joined the Vanderbilt technical staff in 1950 and has served in the laboratory and as a technical sales representative in the Akron, Ohio, area. His successor in the Akron area will be announced at a later date. Mr. Abbey studied chemical engineering at Pennsylvania State College. Before joining Vanderbilt, Mr. Abbey was chief chemist at the Pottstown, Penna., plant of the Firestone Tire & Rubber Co. He was employed by the Firestone organization for ten years.

Arthur L. Hollis has joined the company's technical staff and will serve as technical representative calling on synthetic rubber producing plants and rubber companies in the Texas area. He will make his headquarters in Texas. Mr. Hollis studied chemical engineering at Purdue University and chemistry at the University of Akron. He was associated with the B. F. Goodrich Co. from 1932 until April, 1955, at which time he joined the Vanderbilt organization. From 1951 to 1955, Mr. Hollis was on loan to the Office of Synthetic Rubber in Washington, D. C., where he served in the administration of the government's synthetic rubber program.

R. T. Vanderbilt has also announced the transfer of Robert Loveland to the New England area. This was the territory served by the late Gladding Price for so many years. Mr. Loveland formerly made his headquarters in New Jersey but will now be established in the vicinity of Boston, Mass. Mr. Loveland studied chemical engineering at Tufts College and joined Vanderbilt in 1943. Prior to that time, he was with the R.C.A. Victor Co. for three years, and with Johnson & Johnson, New Brunswick, N. J., for ten years as a chemical engineer.

Arthur C. Rowley has also joined the technical staff of the company. He will do technical development work at the laboratory in East Norwalk and technical sales work in the territory formerly covered by Hugh Bethell. Mr. Rowley studied chemical engineering at the Massachusetts Institute of Technology. He served as a development chemist at the Providence, R. I., plant of the U. S. Rubber Co. for twelve years and at the General Electric Co. in Bridgeport, Conn., for four years, prior to joining the R. T. Vanderbilt Co.

Named to Technical Sales

O. B. Samler has been appointed as a technical sales representative and will cover the New Jersey and Philadelphia area. Mr. Samler joined the technical staff of the company's laboratory at East Norwalk in 1952. Before joining Vanderbilt, he served in the laboratory of the Hood Rubber Co. at Watertown, Mass., for one year. Mr. Samler studied chemistry and chemical engineering at Pennsylvania State College and Syracuse University.

The company has also announced that

William F. Russell

Arthur C. Beadle has joined the laboratory staff at East Norwalk. Mr. Beadle attended the University of Kentucky and Rutgers University. Since 1952, he has been employed by the U. S. Rubber Co.

Kenneth M. Deal has also joined the company's laboratory staff. In his new position, Mr. Deal will be actively engaged in latex compounding and development problems. He studied chemistry at Ohio University. Mr. Deal joined the Goodyear Tire & Rubber Co. in 1945 and served on latex development work until 1953. From 1953 to February, 1955, he was chief chemist at the American Foam Rubber Corp., Burlington, N. J.

Joins Technical Staff

Thomas J. Farley has joined the technical staff of the rubber laboratory at East Norwalk. Mr. Farley was previously associated with the U. S. Rubber Co. for ten years and the U. S. Rubber Reclaiming Co. for four years in chemical and technical sales capacities. He was chief chemist at the Essex Rubber Co., Trenton, N. J., for two and one-half years before joining Vanderbilt. Mr. Farley studied chemical engineering at Stevens Institute.

Thomas E. Kelley has also joined the rubber laboratory technical staff. Prior to his present appointment, Mr. Kelley was employed in chemical work at Jenkins, Bros., Inc., and the Sponge Rubber Products Co. for three years. Mr. Kelley studied chemistry at the University of Connecticut and the University of Bridgeport.

H. F. Bethell

W. F. Abbey

A. L. Hollis

R. Loveland

A. C. Rowley

O. B. Samler

TWO ROAD-BUILDING MEASURES VOTED DOWN BY VOTE IN HOUSE

The House of Representatives on July 27 rejected rival Republican and Democratic bills for new road-building programs, apparently ending all prospects for highway legislation this session. President Eisenhower's program called for the issuance of $21,000,000,000 in special bonds which would not have been counted as part of the national debt. This was turned down by a vote of 221 to 193.

A Democratic proposal to increase gasoline, diesel fuel and other highway "user" taxes was defeated by a vote of 292 to 123. Rejection of the President's proposal was not unexpected. However, the one-sided defeat of the Democratic measure provided one of the season's biggest upsets for the party's House leaders.

Speaker Sam Rayburn (Dem., Texas) said that the vote had killed highway legislation for this year "and probably next year too". He said passage of another road bill, even in 1956, was unlikely "with the House as divided as that".

The Democratic measure brought forth strong statements from many in the trucking, gasoline and tire industries. As proposed, the bill would have increased the manufacturers' excise on buses, trucks and trailers, and called for tax increases on heavy tires and tubes. In addition, it was proposed that a tax of fifteen cents a pound be levied on camelback.

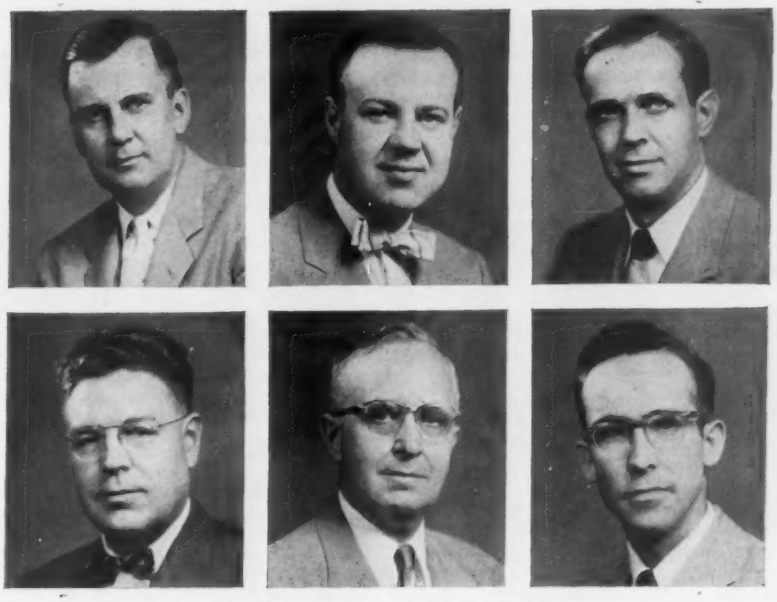
Rubber industry spokesmen representing the Rubber Manufacturers Association, and various tire manufacturers, either appeared before the House Public Works Committee or expressed themselves in letters to its chairman in opposition to the bill proposed by the Democrats.

It was stated that the bill, as proposed, was discriminatory against the trucking industry and that it would hurt small independent tire dealers. It was also stated that if the bill were passed it would encourage the use of unsafe tires and increase accident hazards for all motorists.

Open Twitchell Laboratories

Emery Industries, Inc., Cincinnati, Ohio, recently opened its newly-completed Twitchell Memorial Laboratories. Dedicated to Dr. Ernest Twitchell, Emery's first research chemist, and built at a cost of over $800,000, the new three-story "L" shaped building provides 30,000 square feet of floor space for 28 individual laboratories. In it are housed the new chemical laboratory, the fatty acid and esters laboratories and the textile laboratories of the Research Department, plus the Chemical Engineering Department and the development and service laboratories. All are completely air conditioned. These facilities and the special application laboratories on the ground floor are well equipped for basic research on products and plant processes and for evaluation of Emery's fatty acids, plasticizers and textile oils. The new research center also includes an up-to-date library with all available literature on the developments and findings in the fast moving fields of chemistry and engineering, and is equipped with all modern visual aid devices.

GOODYEAR ANNOUNCES FORMATION OF RUBBER COMPOUNDING SECTION



Top row (left to right): J. F. Kerscher; Bruce W. Habeck; Kermit C. Beach. Bottom row (left to right): Carl E. Gordon; Ralph E. Hughes; W. J. Beach.

Goodyear Tire & Rubber Co., Akron, Ohio, has announced the formation of a Rubber Compounding Section within the Chemical Materials Development Department in order to provide technical information and service to the rubber industry on the company's "Plioflex" rubbers. These rubbers, recently introduced by the company, are butadiene-styrene copolymers which were previously designated as the GR-S type. Technical service is available through the Sales Department of Goodyear's Chemical Division, which also provides sales service on the company's established "Chemigum" nitrile rubbers and "Wing" chemicals.

J. F. Kerscher has been named to head the Rubber Compounding Section. Assisting Mr. Kerscher will be Bruce W. Habeck and Kermit C. Beach, Goodyear veterans with 13 and 14 years of service, respectively, Carl E. Gordon, Ralph E. Hughes and W. J. Beach. Mr. Kerscher joined Goodyear eighteen years ago and for the past eight years has been head of the Hose Compounding Section of the Industrial Products Division. He is a graduate of the University of Wisconsin. Mr. Habeck, after joining Goodyear, assisted the government in setting up synthetic rubber facilities in Akron, Baytown and Los Angeles. He was one of the original men to form the Chemical Products Development Department at Goodyear and to initiate development work on the Chemigum rubbers. He is also a graduate of the University of Wisconsin.

Mr. K. C. Beach has had six years of experience in rubber production and another six years in testing, development and rubber compounding. He also has done considerable development work on rubber-reinforcing resins. He received B.S. and M.S. degrees in chemistry from the University of Akron. Mr. Gordon, who received his B.A. degree from Southwestern College, has had twelve years of experience in development and plant technical work. Mr. Hughes has more than thirty-five years' experience in rubber compounding research, development and customer service. Mr. W. J. Beach was graduated from Pennsylvania State University with a B.S. degree. He has been engaged in rubber compounding work for the past ten years.

Names Three Vice-Presidents

Three vice-presidential appointments at Battelle Memorial Institute, Columbus, Ohio, were announced recently by Dr. Clyde Williams, Institute president and director. Named were Dr. B. D. Thomas, David C. Minton, Jr., and John S. Crout. All three have long been associate directors of the research organization, and, along with Dr. Williams, comprise the key policy-making and executive team in Battelle management. "This formalizes the official status of our top management team", said Dr. Williams in announcing the appointments. "These men, originally trained as scientists and engineers, have worked closely with me in welding the 2,500 people who comprise our organization into a harmonious group. Through a diversity of talents in the skills required for sound administration and growth, our executive team has been able to bring to problems a unique approach which combines the viewpoints and judgments of businessmen and technical men. These three men, with their diverse technical backgrounds and experience, first in research in their chosen fields and then in management, make a real team." Mr. Thomas is a physical chemist; Mr. Minton, a mining and metallurgical engineer; and Mr. Crout, a mechanical engineer.

ASME RUBBER AND PLASTIC DIVISION HOLDS INTERESTING BOSTON MEETING

The Rubber and Plastics Division of the American Society of Mechanical Engineers met on June 20 at the Hotel Statler in Boston, Mass., during the Semi-Annual Meeting of the parent society which was held from June 19 to 24. The Rubber and Plastics Division held two technical sessions, both sessions being co-sponsored by the Wood Industries Division. The Executive, Advisory and General Committees of the Rubber and Plastics Division also met at noon of June 20 at a special luncheon session.

The first technical session of the meeting consisted of a symposium on "Fundamentals of Adhesives." Four interesting papers were presented at this session including:

"Some Fundamental Aspects of the Problem of Rubber-Metal Adhesion" by D. M. Alstadt of the Lord Manufacturing Co., Erie, Penna.

"Stress Distributions and Design Data for Adhesive Lap Joints Between Circular Tubes" by James L. Lubkin of the Midwest Research Institute and Eric Reissner of the Massachusetts Institute of Technology, Cambridge, Mass.

"Measurements of the Contribution of the Electrostatic Component to the Strength of an Adhesive Bond, and Its Use in Quality Control" by Selby M. Skinner and Joseph Gaynor of the Case Institute of Technology, Cleveland, Ohio.

"The Role of Temperature and Pressure in Bond Strength of Adhesives" by Frank Moser, Pittsburgh Plate Glass Co., Pittsburgh, Penna.

Rubber-Metal Adhesion

In his paper on "Some Fundamental Aspects of the Problem of Rubber-Metal Adhesion," Mr. Alstadt said that factors of significance in the production of adhesion between rubber and metal can be divided into (1) factors characterizing the rubber to be bonded; (2) factors characterizing the adhesive polymer, and (3) factors characterizing the metal.

For physical adhesion at the rubber-adhesive and adhesive-metal interfaces, it is important that the unjoined faces to be bonded demonstrate the maximum possible free surface energy compatible with a low interfacial free energy existent after bond formation. If adequate physical adhesion at either the rubber-adhesive or adhesive-metal interface is unlikely, chemical adhesion produced by the formation of primary valence bonds must be promoted. Neoprene rubbers and butadiene-acrylonitrile rubbers can be adhered by the physical forces alone; natural and butadiene-styrene types require the formation of primary chemical bonds.

The characteristics of a rubber that are significant in the production of adhesion are the polarity of the base polymer, the polarity changes in the rubber material induced by compounding or processing methods, the surface topography of the stock, the chemical reactivity of the rubber chains, and the nature of the interfacial electrical characteristics at the adhesive layer that influence the movement and reactions of chemical cross-bridging agents.

Factors related to the nature of the adhesive system that are of importance are polymer polarity, the chemical reactivity of the polymer chain, the nature of chemical cross-bridging additives, the surface topography, the elasto-plastic nature of the adhesive, the molecular weight of the adhesive polymer, the homogeneity of the adhesive film, the solvent present in the adhesive system, the nature, concentration, and galvanic activity of reinforcing pigments, and the thermal expansion coefficient of the bonding agent.

Qualities of a metal of importance in the adhesion picture are the thermodynamic free energy of the surface, the structure and thickness of natural or artificial adsorbed films, the crystal orientation and free energy change produced by mechanical rolling, and the surface roughness factor, Mr. Alstadt said.

Adhesive Lap Joints

In their paper on "Stress Distributions and Design Data for Adhesive Lap Joints Between Circular Tubes," the Messrs. Lubkin and Reissner broadened the earlier mathematical analysis of stresses in flat lap joints to include the important case of tubular joints. At the same time, they extended the concept of relative rigidity of adhesive and adherend.

This paper put on a mathematical basis the more or less intuitively and empirically recognized factors of stress concentrations and the presence of complex stress combinations in joints presumably subjected to simple stress. The paper indicated that the nature and distribution of stresses in adhesive joints are functions of the geometry of the joint and the mechanical constants of adhesive and adherend.

The third paper presented at the symposium on "Fundamentals of Adhesives," entitled "Measurements of the Contribution of the Electrostatic Component to the Strength of an Adhesive Bond, And Its Use in Quality Control," was prepared with the support of the Aeronautical Research Laboratory, Wright-Patterson Air Force Base, U. S. Air Force. The authors, the Messrs. Skinner and Gaynor, stated that modern solid state theory can be shown to predict that at the boundary between two dissimilar materials there will occur a net electrical charge transfer.

When this occurs in an adhesive bond, and electrostatic force arises between the oppositely charged adherend and adhesive, breaking the bond requires that this force be overcome. Theory indicates that this electrostatic component of adhesion may range from negligible values to magnitudes comparable with the total breaking force; experiments have been performed to check whether such predictions may be regarded as significant.

The experiments confirm the possibility of such ranges in the value of the electrostatic component adhesion, and explain why this component has in general not been included in the array of forces involved in practical adhesion. The experimental techniques and results were described. While the latter agree with the predictions of the theory, and give considerable support to the precise mechanism used in the theory, they do not unambiguously preclude other mechanisms as a cause of the charge transfer. Some requirements of any mechanism which will explain the experimental results were given.

The electrostatic component of force depends upon the relationship of the physical properties of the adherend and adhesive and cannot be predicted from those of either separately. Electrical measurements of transient effects during break yield characteristic patterns, which while arduous in exact interpretation, may be used qualitatively in the study of adhesive bond performance, and under suitable conditions may be an adjunct to quality control and to the setting up of suitable techniques in the preparation of adhesive bonds in production applications.

"The Role of Temperature and Pressure in Bond Strength of Adhesives" was the title of the paper presented at the symposium by Frank Moser. A valuable aspect of this paper was the use of statistical methods to evaluate the inter-relationships among composition, temperature, pressure, and bond strength of a variety of adhesives. The author also assessed the relative importance of the factors governing strength, both separately and in combination.

It was noted that for some adhesive systems pressure is the significant factor, for others it is temperature, and for others it is pressure and temperature combined, Mr. Moser said.

Applications of Adhesives

The afternoon technical session on June 20 was devoted to a symposium on "Applications of Adhesives." Three papers were presented at this session, including:

"Heat-Cured Resin Adhesives" by Carl F. MacLagen and C. C. Booth of the Chemical Division, Borden Co., Bainbridge, N. Y.

"Adhesives—A Third Dimension in Fastening and Joining" by Richard S. Piper, Minnesota Mining and Manufacturing Co., Detroit, Mich.

"Adhesive Bonding of Metals" by Samuel N. Muchnick, Franklin Institute, Philadelphia, Penna.

Mr. Booth presented the paper on "Heat Cured Resin Adhesives" which he had co-authored with Mr. MacLagen. Mr. Booth presented valuable data on the strength properties of phenolic, melamine, urea, resorcinol, and resorcinol-phenolic blends of wood adhesives, under laboratory test conditions and after exposure outdoors for periods varying up to ten years.

The results of these tests underlay and confirm the authors' recommendation that the durable adhesives be used in any wood structure of which long-time service is expected, especially under adverse conditions.

Mr. Piper, in his paper on "Adhesives—A Third Dimension in Fastening and Joining," said that adhesive performance has reached a point where competition with mechanical fasteners and fusion methods for structural joining is now possible. This paper describes the relation of adhesive bonding to traditional assembly methods and gives the designer a basic outline of

factors to be considered in selecting and using adhesives.

The four types of joint stress—tensile, shear, cleavage and peel—were illustrated, described and compared. Performance characteristics and limitations of present day adhesives were summarized. An attempt was also made to show that adhesive bonding belongs in the modern designer's repertory of assembly techniques—not only as a possible replacement of other techniques, but also as a means to achieve new designs which have not been feasible with mechanical fastening devices.

In his paper on "Adhesive Bonding of Metals," Mr. Muchnick noted that the strengths of adhesive-bonded metal joints can be made to approach the cohesive strength of the bonding agent if the metal surfaces are properly treated. With one organic adhesive, loads exceeding 7000 psi have been required to break the adhesive bond between samples of stainless steel; 5500 psi for aluminum; 7000 psi for titanium and 4000 for magnesium. The contact angle which a water drop makes with a treated surface was shown to be an effective tool for evaluating the adequacy of the treatment for metal surfaces. For example, when a water drop makes a very low or zero contact angle on the metal surfaces following the treatment, and bonding is done immediately, the joints are generally strongest and most reproducible.

A theoretical basis was presented for the bonding of metals by means of organic adhesives. A study was described of how nominal joint strength is affected by an adsorbed film on the metal surface and by the mechanical properties of the metal.

Using four different adhesives on identically treated metal surfaces, joint strengths and characteristics were determined. In addition, an investigation was made of procedural variables which might affect the surface properties of the treated metals and hence joint strengths.

Tenney Appoints Ridgeway

Ridgeway Engineering Associates, with offices in Chicago, Ill., and Indianapolis, Ind., has been appointed by Tenney Engineering, Inc., 1090 Springfield Road, Union, N. J., to handle sales of specialized environmental test equipment, including altitude, temperature and humidity chambers, baths, walk-in rooms, sand and dust, explosion, fungus and other unique environmental test chambers. Ridgeway will also handle sales of Tenney's sub-arctic low temperature industrial cabinets for metal treating, drug and chemical storage, and production testing. Ridgeway will cover Illinois, Indiana, Iowa, Wisconsin, and part of Kentucky.

Appointed Assistant Secretary

George F. Clayton, former resident attorney and assistant secretary of the Goodyear Aircraft Corp., Akron, Ohio, has been appointed assistant secretary of the Goodyear Tire & Rubber Co., Akron, Ohio. Mr. Clayton succeeds W. M. Mettlerm who died recently. Mr. Clayton has been associated with the Goodyear organization since 1934. He is a graduate of Ohio State University and the Cincinnati Law School.

THREE APPOINTMENTS ANNOUNCED BY WHITTAKER, CLARK & DANIELS

W. W. Roff

J. Seidler

R. G. Smith

Whittaker, Clark & Daniels, Inc., New York, N. Y., has announced three new executive appointments. Wallace W. Roff, formerly vice-president and sales manager, has been named executive vice-president. Mr. Roff, who has been associated with the company for thirty-seven years, is also a director of the firm. John Seidler, formerly assistant secretary and assistant sales manager, has been named general sales manager and appointed a director of the company. Mr. Seidler, associated with the concern for twenty-three years, also continues in his capacity as assistant secretary. Robert G. Smith, previously plant manager and regional division manager, has been appointed assistant sales manager and a director of the company. He has been with Whittaker, Clark & Daniels for twenty-one years.

Forms Foreign Sales Company

Velsicol Corp., Chicago, Ill., has announced the formation of a separate company to handle its expanding foreign trade activities. The new company will be known as Velsicol International Corp., C. A. The main office is to be located in Chicago, while a branch office is to be located in New York City. The new organization will be headed by Mr. E. T. Collinsworth, Jr., who has been named president. Mr. Collinsworth still retains his post as vice-president and general manager of the parent company. Velsicol Corp. manufactures technical chlordane, heptachlor and endrin, well known insecticides that have been promoted with increasing efforts in foreign countries. The new Velsicol International Corp. will assume responsibility not only for foreign insecticide sales but will also be concerned with the marketing of the other Velsicol products outside the United States. These products include resins, solvents and saturants.

Transferring Rubber-Stichting

According to reports from The Hague, Netherlands, the government of Indonesia has decided to transfer the activities of Rubber-Stichting to Indonesia. The Indonesian government stated that while it fully realizes the significance and value of the work Rubber-Stichting has been doing for natural rubber at Delft, the organization has its headquarters too far from Indonesia. Indonesian authorities cannot deal directly with the organization, it was said, under the present arrangement. In addition, the maintenance of the organization in the Netherlands means that the Indonesian government must make outlays in foreign currency. In consideration of Indonesian rubber producers, therefore, the government decided to move Rubber-Stichting.

Davidson to Receive SCI Award

Joseph G. Davidson, vice-president of the Union Carbide and Carbon Corp., New York, N. Y., has been chosen to receive the Chemical Industry Medal for 1955 "for conspicuous services to applied chemistry". Announcement of the award was made by the American Section of the Society of the Chemical Industry, donor of the medal. Formal presentation of the medal to Dr. Davidson will be made at a meeting of the American Section following a dinner in the medalist's honor at the Waldorf-Astoria Hotel in New York City on October 28. The Chemical Industry Medal was established in 1933 and is awarded annually in recognition of outstanding accomplishment in applied chemistry. Dr. Davidson is recognized for research, production, and administration in synthetic organic chemistry, particularly for his vital part in bringing to its present vast dimensions what is now known as the petrochemical industry. He was chosen for the award by the Executive Committee of the American Section, Society of the Chemical Industry.

General Tire Buys R.K.O.

General Tire & Rubber Co., Akron, Ohio, has announced the purchase of R.K.O. Radio Pictures Corp. for $25,000,000. The purchase includes all production and distribution facilities of R.K.O. Also included are 400 old moving pictures which are now available for the Film Division of General Teleradio, subsidiary of the General Tire & Rubber Co. Thomas J. O'Neil, vice-president of General Tire and president of General Teleradio, the Mutual Broadcasting System and Don Lee Studios, said that "the purchase of R.K.O. marks another important step in the diversification program aggressively pursued by General Tire & Rubber over the last several years."

GOODYEAR CHEMICAL FORMS THREE SALES DEPARTMENTS

Three new sales departments have been established at the Chemical Division of the Goodyear Tire & Rubber Co., Akron, Ohio. The reorganization of the division's sales headquarters, effective immediately, was announced by C. O. McNeer, general sales manager of the division. Mr. McNeer said that the new departments will be called Rubber and Rubber Chemicals, Plastics, and Coatings. Two other key managerial moves were announced by Mr. McNeer. R. S. Earhart, formerly sales operating and marketing manager, has been promoted to assistant general sales manager, and P. S. Sherman, previously assistant operating manager, has been named sales operating manager. In the new sales organization, M. J. Rhoad, formerly assistant to the general sales manager, has been named manager of the Rubber and Rubber Chemicals Department; A. E. Polson, previously sales service manager, has been named manager of the Plastics Department, and John Warner, formerly manager of the division's St. Louis district, has been appointed assistant manager of the Coatings Department.

Background of Appointees

Mr. Earhart joined Goodyear in 1940, and was assigned to the Chemical Division in 1945. He was named operating manager in 1947 and sales operating and marketing manager in 1953. He is a graduate of Ohio Wesleyan University. Mr. Sherman joined Goodyear's training squadron in 1950 and the following year became a special representative to the Chemical Division. In 1952, he was made responsible for expediting customer service in processing and shipping orders and the following year was promoted to assistant operating manager. He holds a B. A. degree from the University of Akron. Mr. Rhoad joined the company in 1943 in the research department where he was engaged in high polymer research. He was assigned to the Chemical Division in 1951 in the sales service department. He later had charge of sales of Goodyear's Wing Chemicals to the rubber industry. He holds a B. S. degree in chemistry from Heidelberg College. Mr. Polson joined the Chemical Division in 1948 as a special representative. He was made a technical representative in 1949 and sales service manager in 1952. Mr. Polson was graduated from the University of Minnesota with a B.S. degree in chemical engineering. Mr. Warner joined the company's training squadron in 1948 and shortly thereafter was assigned to the research and development sections. He joined the Chemical Division's sales staff in 1949 and was assigned to the St. Louis district. He became manager of the district in 1952. He holds a B.S. degree in chemistry from Kent State University.

Ups Carbon Black Output

Additional laboratories for studying the application of carbon blacks in all phases of industry are now under construction at the Sterlington, La., plant of Thermatomic Carbon, an affiliate of Commercial Solvents Corp., New York, N. Y. The company's production of thermal type carbon black will also be stepped up by 15% as a result of increased production facilities scheduled for completion in January, 1956. New construction includes enlarged, modern offices for the company's executive and administrative personnel, it was said. Thermatomic has engaged Frederick W. Barlow, chemical engineering specialist in the carbon field, as laboratory director of the new facilities. It is said that most of the expanded production will be utilized by tire, mechanical rubber goods, and rubber footwear industries. Thermatomic produces two types of carbon black, both of which are marketed through the R. T. Vanderbilt Co. of New York City.

RTA Forms Thirty-Year Club

The Rubber Trade Association of New York, Inc., has announced the formation of a Thirty Year Club, formed to foster and promote, as a non-profit organization, the social interest, of those of the rubber trade who have or were for 30 years or more actively engaged in the natural rubber importing business. A special RTA committee composed of S. J. Pike, Fred Pusinelli, D. A. Paterson, J. Louis and L. V. Keeler, formed the new club. The First Annual Dinner of the new organization was held on June 28 at the Downtown Athletic Club. Arthur J. Garry is secretary-treasurer of the Thirty Year Club.

New York Holds Golf Tournament

Approximately 200 members and guests of the New York Rubber Group attended the Annual Golf Outing held on July 28 at the Shackamaxon Golf Club in Scotch Plains, N. J. Some 160 members and guests participated in the tournament. G. H. Provost (U. S. Rubber), served as chairman of the Golf Committee with H. Due (St. Joseph Lead) as treasurer. J. Breckley (Titanium Pigment) and C. O. Davison (Columbian Carbon) also served on the committee. Vincent Lake (Asphaltic Specialties) took low gross honors with a 73 and as a three-time winner of this event took permanent possession of the Nesbit Cup. Jean H. Nesbit (National Polychemicals) personally presented the cup to Mr. Lake. Second low gross honors went to Frank Woznak and Wes Curtis. Fil Salomon took third low gross honors. Among the guests, Russ Shaw (Lee Tire) won the prize for low gross. Second and third low gross honors among the guests went to Frank Pechtel and T. R. Weichel. Other golfing events were won by the following: *Putting Contest,* Messrs. Nippes, Tinsley, Fish, Kineon, Simpson, Crouse, Rines, Eufer, and Jones; *Nearest-to-Pin on 11th Hole,* Messrs. Weichel, Diener, Bochus, Matthews, Sevenko, and Crossley; *Kicker's Handicap,* Messrs. Moran, Hartsfield, Sevenko, Fillon, Higgins, Carroll and W. T. Johnson; *High Gross,* O. B. Samler. In a special raffle, A. W. Langer (Esso Research Labs) won a golf bag and clubs.

Product Facilitates Dispersions

Kenrich Corp., Maspeth, N. Y., reports that the problem of dispersing such hard-to-mix rubber accelerators such as GMF, dibenzo-GMF, red lead and sublimed litharge in rubber compounds can be overcome with the aid of "Kenmix Dispersions". The accelerator is said to be completely wetted out and dispersed in a resinous vehicle, Kenflex N. The dispersion is described as superior to that which can be obtained in a masterbatch on a two-roll mill, and the accelerators are protected from moisture and carbon dioxide. There is no toxic or explosive dust and the dispersion can be introduced into the batch quickly and at low temperature, so that heat history is cut to a minimum, affording excellent control of scorchy stocks.

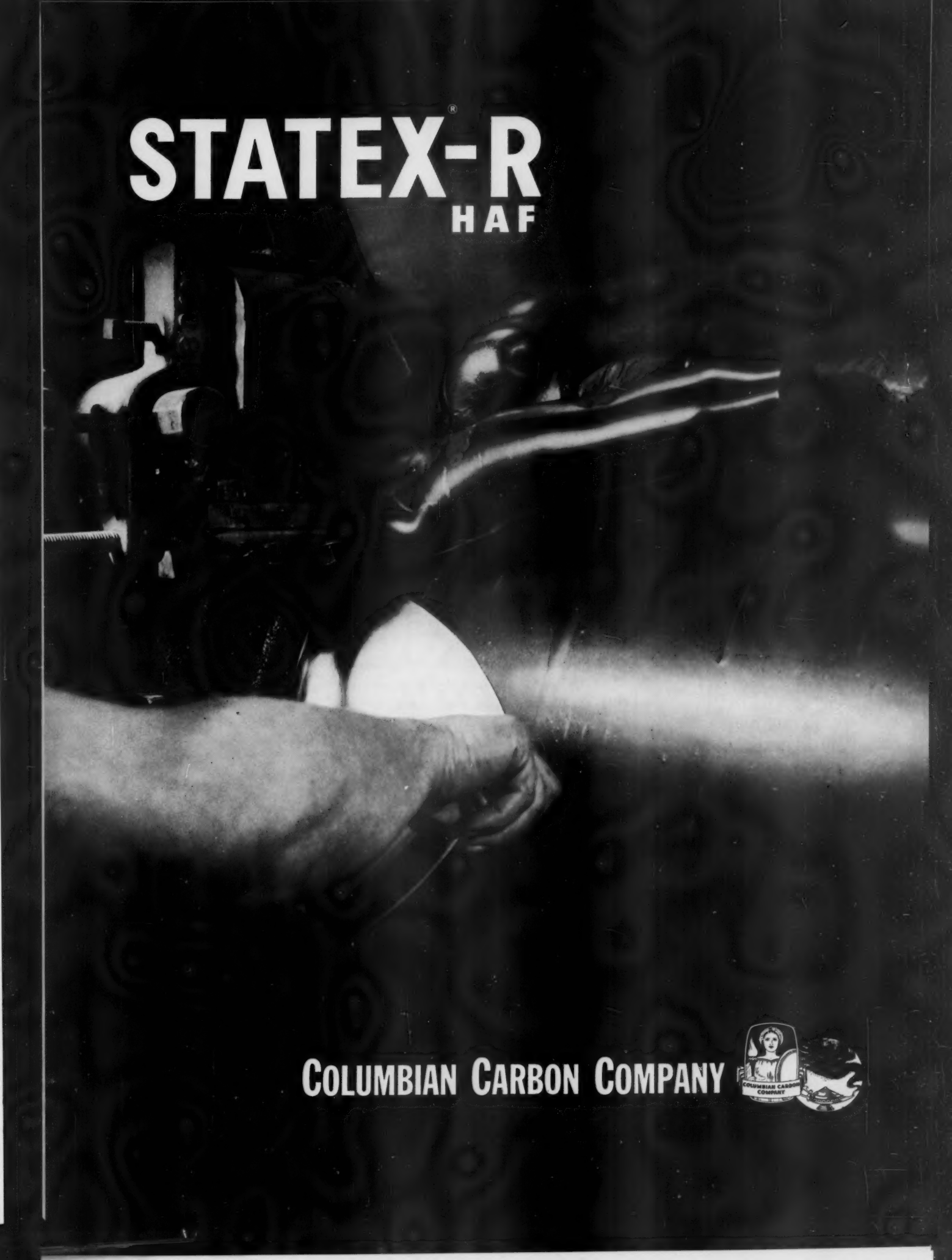
R. S. Earhart

P. S. Sherman

M. J. Rhoad

A. E. Polson

J. Warner


STATEX®-R
HAF
COLUMBIAN CARBON COMPANY
COLUMBIAN CARBON COMPANY

ISAF (Intermediate Super Abrasion Furnace)

STATEX®-125

◆

HAF (High Abrasion Furnace)

STATEX-R

◆

MPC (Medium Processing Channel)

STANDARD MICRONEX®

◆

EPC (Easy Processing Channel)

MICRONEX W-6

◆

FF (Fine Furnace)

STATEX-B

◆

FEF (Fast Extruding Furnace)

STATEX-M

◆

HMF (High Modulus Furnace)

STATEX-93

◆

SRF (Semi-Reinforcing Furnace)

FURNEX®

COLUMBIAN CARBON COMPANY

380 Madison Avenue, New York 17, N. Y.

PROXY STATEMENT DISCLOSES NEW THERMOID CASE DETAILS

James R. Hewitt, former president of a subsidiary of the Thermoid Co., Trenton, N. J., and Sydney L. Albert, president of the Bellanca Aircraft Corp., have been revealed as "prime movers" in a proxy fight to unseat the present management of Thermoid. Mr. Hewitt, treasurer of Payer, Hewitt & Co., recently-formed industrial brokerage firm, was named in a proxy statement recently issued by the Thermoid Shareholders' Committee as the man who is financing not only a proxy solicitation aimed at electing a new board, but also stockholder suits recently filed against Thermoid in Trenton.

Mr. Hewitt, identified as a 50% beneficial holder of 2,600 Thermoid common shares, was president of the Essex Rubber Co. in September, 1951, when he negotiated the sale of that firm to Thermoid. After the sale, he continued to head Essex until March, 1952, the proxy statement says, after which it became necessary for him to sue Thermoid to recover money due him under a contract dated September 14, 1951.

Mr. Hewitt, the proxy statement discloses, is backed financially in the Thermoid proxy campaign by, among others, Sydney L. Albert, head of the Bellanca Aircraft Corp. Mr. Albert has been active in business circles in the past few months during which time he has acquired control of Bellanca, Standard Industries, Inc., of Scranton, Penna., and Waltham Watch Co.

The proxy statement notes that Mr. Albert owns 100 shares of Thermoid, purchased last May, and that for many years L. Albert & Son (a firm Mr. Albert traded to Bellanca for 82% of Bellanca common stock) has dealt with Thermoid and subsidiaries in purchase and sale of machinery.

Other Financial Backers

Other financial backers of Mr. Hewitt listed in the proxy statement are: Hart Fleming, Cleveland management consultant; Franklin L. Payer, head of Payer, Hewitt & Co., Joseph Abrams, New York investment firm partner, and Shiah Arsham, Cleveland textile man.

Together with three members of the stockholder committee previously identified—Lawrence A. Harris and Fred Schroeter of New York, N. Y., and George Summers of Chevy Chase, Md.—the dissident stockholder group claimed Thermoid stockholdings in excess of 8,000 shares. The firm has 800,000 shares of common and 45,780 preferred shares outstanding, all of which are entitled to vote. An adjourned annual meeting of Thermoid was scheduled to reconvene on August 9.

The stockholder committee said it is "very busily engaged in arranging for a slate of nominees for the directorship" of Thermoid. The only prospective candidate named in the statement was Mr. Fleming.

In a later statement issued at the end of July, the stockholder committee announced the nomination of nine candidates for the board of the Thermoid Co. Those nominated by the committee include: Harold Allsopp, vice-president of Jones & Laughlin Steel Corp.; Scott M. Fell, president of the Broad Street National Bank of Trenton; Philip A. O'Neill, president of the Motor Finance Corp. of Newark, N. J.; Paul O. Summers, vice-president of the Parkersburg-Aetna Bearing Co.

Also, Vice-Admiral W. G. Tomlinson (ret.); Eugene C. Carusi, Washington attorney; Andrew B. Crummy, member of the law firm of Crummy, Consodine, Gibbons & O'Neill; and Dr. Milton Konvitz, professor of labor law at Cornell University, in addition to Mr. Fleming.

ACUSHNET PROCESS COMPANY ELECTS NEW CHAIRMAN AND PRESIDENT

Fred W. Bommer

Richard B. Young

At a recent special meeting of the board of directors of the Acushnet Process Co., New Bedford, Mass., Fred W. Bommer was elected chairman of the board and Richard B. Young was elected president. Mr. Bommer is president of the Acushnet Process Sales Co., a wholly-owned subsidiary, and vice-president and general manager of the Golf Ball Division of the Acushnet Process Co. A graduate of the Massachusetts Institute of Technology with a degree in chemical engineering, his background includes experience in the Cost, Planning and Testing Departments of the Boston Woven Hose & Rubber Co. He has also been technical manager of the Converse Rubber Corp. Directly prior to joining the Acushnet Process Co., Mr. Bommer was general manager of the Lambertville Rubber Co. He organized Acushnet's Golf Ball Division in 1932.

Mr. Young is a mechanical engineering graduate of the Massachusetts Institute of Technology and attended the Harvard University Graduate School of Business Administration Advanced Management Program. He joined the company in 1938 and has obtained diversified experience by holding various positions in the Engineering, Manufacturing and Sales Departments of the Rubber Division. He was appointed treasurer in 1953 and has been vice-president in charge of the Rubber Division for the last year.

Named Chemical Sales Manager

J. A. Rousmaniere has been appointed chemical sales manager of the General Magnesite and Magnesia Co., Plymouth Meeting, Penna. Mr. Rousmaniere was graduated from Harvard University with a bachelor's degree in history. During his career, he has been associated with the Food Machinery and Chemical Corp. in chemical sales and at the Taylor Wharton Co. as manager of the Cylinder Division. Joining General Magnesite in September, 1954, he now supervises the manufacture of neoprene-grade magnesia powders.

Wooster Rubber Co., Wooster, Ohio, has issued a 12-page, pocket size quarterly entitled "Rubbermaid Re-Tales" which is being mailed to several thousand retailers who sell the company's "Rubbermaid" line.

To Build Polyethylene Plant

W. R. Grace & Co., New York, N. Y., has announced the signing of a license agreement as part of a project involving the construction of a new plant to manufacture a highly versatile type of polyethylene plastic developed by the Phillips Petroleum Co. of Bartlesville, Okla. The project would involve an investment of over $18,000,000. The announcement said the license agreement with Phillips Petroleum Co. includes use of the process and patent rights and the company's technical knowledge in the production of the plastic material. This project is the latest development in Grace's rapid expansion in the field of chemicals and the investment would raise the company's total capital employed in the chemical industry to over $150,000,000. The Grace announcement said several plant locations are under consideration but no final decision has been made. Engineering studies are to be completed by the end of 1955 and plans call for construction to start during the first half of 1956 with the plant going on stream in the first half of 1957.

Acrylonitrile Prices Cut

American Cyanamid Co., New York, N. Y., has reduced the tank car price of acrylonitrile from 31 to 27 cents a pound. The reduction is said to have been made possible by the development of new production processes.

REVISED DATA ON COMMERCIALLY AVAILABLE GR-S TYPE POLYMERS

This table has been compiled for the benefit of all consumers of synthetic rubber. It is intended to indicate which of the GR-S type synthetic rubbers are currently being marketed by purchasers of the synthetic rubber plants formerly owned by the government. It should be noted that some of the current producers have not as yet adopted specific trade names, and in such cases letters based on the company's initials or the word "type" are employed. While all the price information shown has been carefully checked, it is suggested that users of this table confirm any price before forwarding orders. The same caution is suggested for freight charges.

Government Code	*Type of Polymer*	*Commercial Name*	*Current Producer*	*Cents per lb. (carload)*	*Freight Charges*
GR-S 1000	Hot GR-S (NP)	Butaprene S-1000	Firestone	23.00	Extra
		Plioflex 1000	Goodyear Synthetic	24.25	Prepaid
		Philprene 1000	Phillips Chemical	25.00	Allowed
		S-1000	Shell Chemical	23.00	Extra
		GR-S Type 1000	Texas-U. S. Chemical	24.25	Prepaid
GR-S 1001	Hot GR-S (NP)	Butaprene S-1001	Firestone	23.00	Extra
		G-G 1001	Goodrich-Gulf	24.10	Prepaid
		Philprene 1001	Phillips Chemical	25.00	Allowed
		S-1001	Shell Chemical	23.00	Extra
		GR-S Type 1001	Texas-U. S. Chemical	24.25	Prepaid
GR-S 1002	Hot GR-S (NP)	G-G 1002	Goodrich-Gulf	24.35	Prepaid
		GR-S Type 1002	Texas-U. S. Chemical	24.50	Prepaid
GR-S 1004	Hot GR-S (NP)	Butaprene S-1004	Firestone	23.00	Extra
GR-S 1005	Hot GR-S (NP)	Butaprene S-1005	Firestone	28.00	Extra
GR-S 1006	Hot GR-S (NP)	Butaprene S-1006	Firestone	23.00	Extra
		G-G 1006	Goodrich-Gulf	24.10	Prepaid
		Plioflex 1006	Goodyear Synthetic	24.25	Prepaid
		Philprene 1006	Phillips Chemical	25.00	Allowed
		S-1006	Shell Chemical	23.00	Extra
		GR-S Type 1006	Texas-U. S. Chemical	24.25	Prepaid
GR-S 1007	Hot GR-S (NP)	GR-S Type 1007	Texas-U. S. Chemical	24.25	Prepaid
GR-S 1009	Hot GR-S (NP)	Butaprene S-1009	Firestone	24.55	Extra
		Philprene 1009	Phillips Chemical	25.50	Allowed
		GR-S Type 1009	Texas-U. S. Chemical	24.75	Prepaid
GR-S 1010	Hot GR-S (NP)	Butaprene S-1010	Firestone	24.50	Extra
GR-S 1012	Hot GR-S (NP)	Butaprene S-1012	Firestone	27.00	Extra
		GR-S Type 1012	Texas-U. S. Chemical	24.25	Prepaid
GR-S 1013	Hot GR-S (NP)	Butaprene S-1013	Firestone	25.00	Extra
		GR-S Type 1013	Texas-U. S. Chemical	25.00	Prepaid
GR-S 1014	Hot GR-S (NP)	Butaprene S-1014	Firestone	27.00	Extra
GR-S 1015	Hot GR-S (NP)	Butaprene S-1015	Firestone	28.00	Extra
GR-S 1016	Hot GR-S (NP)	Naugapol 1016	Naugatuck Chemical	25.50	Prepaid
GR-S 1018	Hot GR-S (NP)	Naugapol 1018	Naugatuck Chemical	26.00	Prepaid
		Philprene 1018	Phillips Chemical	25.75	Allowed
GR-S 1019	Hot GR-S (NP)	Naugapol 1019	Naugatuck Chemical	25.50	Prepaid
		Philprene 1019	Phillips Chemical	25.25	Allowed
GR-S 1021	Hot GR-S (NP)	Naugapol 1021	Naugatuck Chemical	29.00	Prepaid
GR-S 1022	Hot GR-S (NP)	Naugapol 1022	Naugatuck Chemical	26.00	Prepaid
GR-S 1023	Hot GR-S (NP)	Naugapol 1023	Naugatuck Chemical	26.50	Prepaid
GR-S 1100	Hot Black (MB)	Philprene 1100	Phillips Chemical	19.90	Allowed
		S-1100	Shell Chemical	18.50	Extra
GR-S 1104	Hot Black (MB)	Philprene 1104	Phillips Chemical	19.40	Allowed
GR-S 1500	Cold GR-S (NP)	ASRC 1500	American Synthetic	24.10	Prepaid
		Copo 1500	Copolymer	24.10	Prepaid
		Butaprene S-1500	Firestone	23.00	Extra
		G-G 1500	Goodrich-Gulf	24.10	Prepaid
		Philprene 1500	Phillips Chemical	25.00	Allowed
		S-1500	Shell Chemical	23.00	Extra
		GR-S Type 1500	Texas-U. S. Chemical	24.25	Prepaid
GR-S 1501	Cold GR-S (NP)	G-G 1501	Goodrich-Gulf	24.10	Prepaid
		S-1501	Shell Chemical	23.00	Extra
GR-S 1502	Cold GR-S (NP)	ASRC 1502	American Synthetic	24.10	Prepaid
		Copo 1502	Copolymer	24.10	Prepaid
		Butaprene S-1502	Firestone	23.00	Extra
		G-G 1502	Goodrich-Gulf	24.10	Prepaid
		Plioflex 1502	Goodyear Synthetic	24.25	Prepaid
		Philprene 1502	Phillips Chemical	25.00	Allowed
		S-1502	Shell Chemical	23.00	Extra
GR-S 1503	Cold GR-S (NP)	Naugapol 1503	Naugatuck Chemical	25.50	Prepaid
		Philprene 1503	Phillips Chemical	25.25	Allowed
GR-S 1504	Cold GR-S (NP)	Naugapol 1504	Naugatuck Chemical	26.50	Prepaid
GR-S 1600	Cold Black (MB)	Baytown 1600	United Rubber	18.50	Extra
		Philprene 1600	Phillips Chemical	20.00	Allowed
		S-1600	Shell Chemical	18.50	Extra

Government Code	*Type of Polymer*	*Commercial Name*	*Current Producer*	*Cents per lb. (carload)*	*Freight Charges*
GR-S 1601	Cold Black (MB)	Baytown 1601	United Rubber	18.50	Extra
		Philprene 1601	Phillips Chemical	20.00	Allowed
GR-S 1602	Cold Black (MB)	Baytown 1602	United Rubber	18.50	Extra
		Philprene 1602	Phillips Chemical	20.00	Allowed
		S-1602	Shell Chemical	18.50	Extra
GR-S 1605	Cold Oil (MB)	Philprene 1605	Phillips Chemical	19.40	Allowed
GR-S 1703	Cold Oil (MB)	Butaprene S-1703	Firestone	19.50	Extra
		G-G 1703	Goodrich-Gulf	20.60	Prepaid
		Plioflex 1703	Goodyear Synthetic	20.75	Prepaid
		Philprene 1703	Phillips Chemical	21.20	Allowed
		S-1703	Shell Chemical	19.50	Extra
		GR-S Type 1703	Texas-U. S. Chemical	20.75	Prepaid
GR-S 1705	Cold Oil (MB)	Butaprene S-1705	Firestone	19.25	Extra
		G-G 1705	Goodrich-Gulf	20.35	Prepaid
GR-S 1706	Cold Oil (MB)	G-G 1706	Goodrich-Gulf	20.35	Prepaid
		Philprene 1706	Phillips Chemical	21.00	Allowed
		S-1706	Shell Chemical	19.25	Extra
GR-S 1707	Cold Oil (MB)	G-G 1707	Goodrich-Gulf	19.10	Prepaid
		S-1707	Shell Chemical	18.00	Extra
		GR-S Type 1707	Texas-U. S. Chemical	19.25	Prepaid
GR-S 1708	Cold Oil (MB)	Philprene 1708	Phillips Chemical	19.70	Allowed
GR-S 1709	Cold Oil (MB)	G-G 1709	Goodrich-Gulf	18.85	Prepaid
		S-1709	Shell Chemical	17.75	Extra
GR-S 1710	Cold Oil (MB)	Butaprene S-1710	Firestone	17.75	Extra
		G-G 1710	Goodrich-Gulf	18.85	Prepaid
		Plioflex 1710	Goodyear Synthetic	19.00	Prepaid
GR-S 1711	Cold Oil (MB)	G-G 1711	Goodrich-Gulf	18.85	Prepaid
		Philprene 1711	Phillips Chemical	19.40	Allowed
		GR-S Type 1711	Texas-U. S. Chemical	19.00	Prepaid
GR-S 1712	Cold Oil (MB)	Copo 1712	Copolymer	18.85	Prepaid
		Butaprene S-1712	Firestone	17.75	Extra
		G-G 1712	Goodrich-Gulf	18.85	Prepaid
		Philprene 1712	Phillips Chemical	19.40	Allowed
		S-1712	Shell Chemical	17.75	Extra
GR-S 1801	Cold Oil Black (MB)	Baytown 1801	United Rubber	17.00	Extra
		Philprene 1803 *	Phillips Chemical	18.00	Allowed
		S-1801	Shell Chemical	17.00	Extra
GR-S 2000	Hot Latex	Butaprene S-2000	Firestone	26.00	Extra
		Naugatex 2000	Naugatuck Chemical	26.30	Extra
		S-2000	Shell Chemical	22.75	Extra
GR-S 2001	Hot Latex	Butaprene S-2001	Firestone	26.00	Extra
		Naugatex 2001	Naugatuck Chemical	26.30	Extra
GR-S 2002	Hot Latex	Butaprene S-2002	Firestone	28.50	Extra
		Naugatex 2002	Naugatuck Chemical	28.80	Extra
GR-S 2003	Hot Latex	Butaprene S-2003	Firestone	29.50	Extra
GR-S 2004	Hot Latex	Butaprene S-2004	Firestone	29.50	Extra
		S-2004	Shell Chemical	26.00	Extra
GR-S 2005	Hot Latex	Naugatex 2005	Naugatuck Chemical	30.00	Extra
GR-S 2006	Hot Latex	Butaprene S-2006	Firestone	26.00	Extra
		Naugatex 2006	Naugatuck Chemical	26.30	Extra
GR-S 2101	Cold Latex	Copo 2101	Copolymer	28.00	Prepaid
		Naugatex 2101	Naugatuck Chemical	28.50	Extra
		Pliolite 2101	Goodyear Synthetic	27.75	Prepaid
		S-2101	Shell Chemical	22.50	Extra
GR-S 2102	Cold Latex	Copo 2102	Copolymer	31.00	Prepaid
GR-S 2104	Cold Latex	Pliolite 2104	Goodyear Synthetic	28.00	Prepaid
GR-S 2105	Cold Latex	Copo 2105	Copolymer	31.00	Prepaid
		Naugatex 2105	Naugatuck Chemical	31.20	Extra
		Pliolite 2105	Goodyear Synthetic	28.00	Prepaid
X-765	Cold Latex	Copo X-765	Copolymer	29.00	Prepaid
		Pliolite X-765	Goodyear Synthetic	26.50	Prepaid
X-767	Cold Latex	Naugatex X-767	Naugatuck Chemical	32.30	Extra
X-769	Cold Black (MB)	Philprene 1605	Phillips Chemical	19.40	Allowed

Note: * Identical with GR-S 1801 except extender is Philrich 5.

SALES HEADQUARTERS OF GR-S TYPE SYNTHETIC RUBBER PRODUCERS

American Synthetic Rubber Corp., 500 Fifth Ave., New York 17, N. Y.
Copolymer Rubber & Chemical Corp., P. O. Box 1029, Baton Rouge 1, La.
Firestone Tire & Rubber Co., Synthetic Rubber Division, 381 West Wilbeth Road, Akron 1, Ohio.
Goodyear Synthetic Rubber Corp., Akron 16, Ohio (Sales Agents: Chemical Division, Goodyear Tire & Rubber Co., Akron 16, Ohio—for Plioflex dry rubbers; General Latex & Chemical Corp., 666 Main St., Cambridge 39, Mass.—for Pliolite latices).
Goodrich-Gulf Chemicals, Inc., 4317 Chester Ave., Cleveland 3, Ohio.
Naugatuck Chemical Division, U. S. Rubber Co., Naugatuck, Conn.
Phillips Chemical Co., Rubber Chemicals Division, 318 Water St., Akron 8, Ohio.
Shell Chemical Corp., Synthetic Rubber Sales Division, P. O. Box 216, Torrance, Calif.
Texas-U. S. Chemical Co., Port Neches, Texas (Sales Agent: Naugatuck Chemical Division, U. S. Rubber Co., Naugatuck, Conn.).
United Rubber & Chemical Co., Charleston, West Va. (Sales Agent: United Carbon Co., P. O. Box 1913, Charleston 27, West Va.).

COMMITTEE D-11 MEETS DURING 58TH ANNUAL A.S.T.M. MEETING

Committee D-11 on Rubber and Rubber-like Materials of the American Society for Testing Materials met in conjunction with the 58th Annual Meeting of the parent organization held from June 27 to July 1 in Atlantic City, N. J. D-11 and 23 of its subcommittees held meetings over a three-day period.

In an election of officers of the parent society, Claire H. Fellows (Detroit Edison) was elected president for a one-year term. Richard T. Kropf (Belding Heminway) was elected vice-president for a two year term, and R. A. Schatzel (Rome Cable) continues in the office of vice-president to which he was elected last year.

As for activities during the meeting of Committee D-11, Subcommittee XIII on Synthetic Elastomers which was organized last May 3 in Cleveland, Ohio, held its second formal gathering. Progress reports were received from the following six sections which were appointed at the organizational meeting: Sampling, Chemical Tests, Physical Tests, Latex, Test Methods, Nomenclature, and Reference Materials.

Subcommittee XIII is reviewing six methods from the "Specifications for Government Synthetic Rubbers", submitted by the synthetic rubber producers. Four of these are under study by the Section on Chemical Tests, namely, methods for the determination of: (1) moisture by the hot mill method; (2) ash; (3) carbon black in masterbatch, and (4) bound styrene in butadiene-styrene rubbers.

Other Methods Considered

The other two methods on Mooney viscosity and properties of vulcanizates are being considered by the Section on Physical Tests. Methods of sampling, tests for latex, definitions and nomenclature, and arrangements for making reference materials available are being studied by the other four sections.

In other actions, Committee D-11 submitted for adoption as standard without revision the Tentative Methods of Testing Automotive Hydraulic Brake Hose (D 571 — 52 T).

One of the important proposals submitted by Committee D-11 was the new Tentative Specifications for Ozone-Resistant Rubber Insulating Tape (D 1373) covering a type of tape now in wide use and commercially available. They represent the result of several year's study by the Subcommittee on Tape and are expected to fill a real need in the electrical industry.

An important change was made this year in the 90-degree Stripping Test for Adhesion of Vulcanized Rubber to Metal (D 429). The method covers the adhesion testing of rubber parts assembled to one metal plate. It has been evaluated by extensive cooperative testing and statistical analysis of the results and has been shown to be superior to the present method.

The committee took action on a number of recommendations which it plans to submit to the Society through the Administrative Committee on Standards. One of these covered a new Tentative Method for Inter-Laboratory Testing of Rubber and Rubber-like Materials. Agreement was reached on a new Method for Determining Hardness of Elastomers at Low Temperatures based on the method submitted by the ISO Technical Committee 45 on Rubber.

A new Method of Test for Stress Relaxation of Vulcanized Rubber in Compression was also completed. The method is intended particularly for the testing of rubber used as gasket materials. Extensive changes will also be recommended in the Tentative Recommended Practice for Conditioning of Rubber and Plastic Materials for Low Temperature Testing (D 832).

Acme Backing Moves Headquarters

The Acme Backing Corporation, manufacturers of coated fabrics and other types of proofed goods, has moved its headquarters from Brooklyn, N.Y., to Canal and Ludlow Streets, Stamford, Conn. The Stamford address is actually the plant of Flexible Barriers, Inc., a subsidiary company which has been in operation for many years. Manufacturing activities of Acme Backing, however, will not be conducted at Stamford, but have been removed to St. Louis, Missouri, where the company has another subsidiary, namely, the ABC Backing Corp. Sales, research, purchasing and other activities, however, will be maintained at Stamford. The facilities in Brooklyn, located at Meadow and Bogart Streets, were disposed of at auction on July 26.

Plans to Acquire Jones Foundry

Hewitt-Robins, Inc., Stamford, Conn., plans to acquire the business, manufacturing facilities and assets of the W. A. Jones Foundry and Machine Co. of Chicago, Ill., maker of heavy-duty speed reducers, pulleys, gears and other accessories used to drive machinery. An agreement covering the terms of purchase has been signed by the two companies and the transfer is expected to take place on August 31. The purchase price was not disclosed. Thomas Robins, Jr., president of Hewitt-Robins, said the acquisition will enhance his company's present top position in the belt conveyor field. It also gives the company diversification of products for sale to industries using drives on equipment other than conveyors. This will be the concern's fourth machinery plant. The other three—in Passaic, N. J., Philadelphia, Penna., and Johannesburg, South Africa —manufacture conveyor rollers (idlers), vibrating equipment and allied products used in the handling of bulk materials. Hewitt-Robins is said to be the only concern equipped to design and engineer a belt conveyor system and manufacture both the rubber and machinery components.

American Resinous Chemicals Corp., Peabody, Mass., has announced a new cold solder, "Arcco C 540" which performs the functions of a conventional hot solder but requires no heat.

GOODRICH "RIBFLEX" BELT TRANSPORTS SACKS AT 45-DEGREE ANGLE

Sugar sacks, weighing 100 pounds each, ascend 24 feet at a 45-degree angle in a new warehouse operated by the Haslett Warehouse Co., Stockton, Calif. As many as six paper sacks ride at one time on the 33-foot "Ribflex" belt manufactured by the B. F. Goodrich Co. Industrial Products Division, Akron, Ohio. The new belt is said to have materially increased Haslett's ability to make use of the cubic area in its warehouse. The belt has a special ridged and cross-cut rubber surface which provides the extra gripping power needed in this operation. The conveyor belt formerly used permitted only a 35-degree incline angle and carried only three sacks at that incline. With the old belt, it was impossible to stack more than 30 bags high. The new Goodrich belt stacks 42 bags high, company officials state.

NEW NATURAL-LIKE SYNTHETIC USED IN LARGE TRUCK TIRES

Truck tires in large sizes, made entirely of man-made rubber which synthetically duplicates tree rubber, are now in service on American highways, according to William S. Richardson, president of the B. F. Goodrich Co., Akron, Ohio. Announcement that its scientists, working at the B. F. Goodrich Research Center at Brecksville, Ohio, had succeeded in reproducing the true molecule of natural rubber was made in December, 1954, by Goodrich-Gulf Chemicals, Inc., owned half by the Gulf Oil Corp. and half by the B. F. Goodrich Co. Successful reproduction of crude rubber synthetically had been a goal of world scientists for generations, Goodrich-Gulf Chemicals, Inc. stated in announcing filing of patent applications on the new rubber with the United States Patent Office.

According to Mr. Richardson, truck tires made of the new rubber are giving mileage and over-all service greatly superior to tires in which other presently available man-made rubbers have been used, and compare favorably with large truck tires made of crude rubber. The tires made of the new rubber went into fleet service following an intensive laboratory and road testing program under the direction of Goodrich tire engineers, the Goodrich official stated.

"The new rubber, produced by chemical synthesis, processed even better during tire manufacture than crude, or tree-grown rubber. There is little or no difference in the techniques required to make truck tires with the new rubber and those generally employed when crude rubber is used," Mr. Richardson stated.

Cites Tests Employed

"Our tests were exact duplicates of those used for testing truck tires made from tree-grown rubber. The resulting comparisons are factual in every way, confirming beyond doubt that the new rubber is chemically, and physically, a reproduction of the true molecule of crude rubber and that it is entirely practical for use in the manufacture of satisfactory large truck tires.

"Large truck tires were chosen for the early tests because they are the most important remaining tire product requiring crude, or tree-grown rubber, to produce a satisfactory end product regardless of material costs.

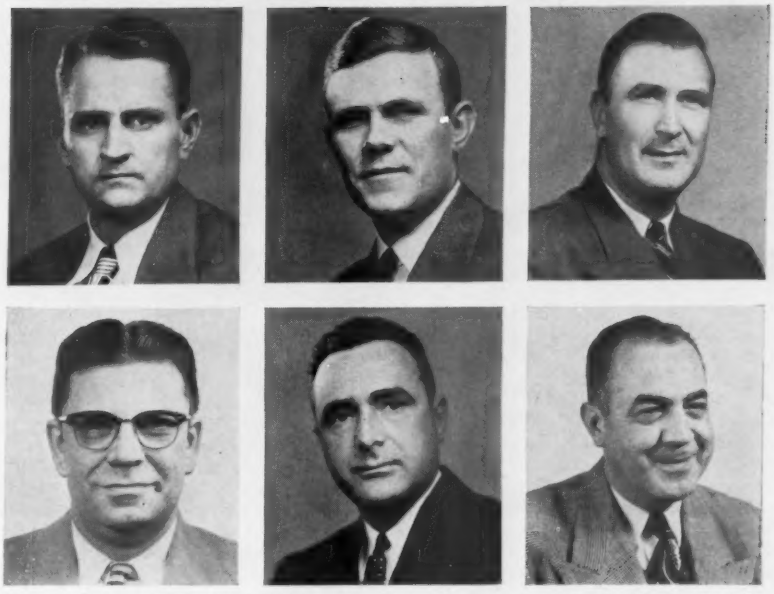
"Tires made of the new rubber are now running on other vehicles undergoing severe tests and this development work will be continued. The implications of the results obtained with the truck tires are very great. If further tests confirm early results, the United States in a national emergency will have the means of becoming practically independent of tree-grown rubber requirements.

"We have for years brought practically all of our tree-grown rubber from lands far from our shores, notably from the troubled Far East and from Africa. To protect ourselves against a shortage of tree-grown rubber in an emergency, our Government currently has several hundred million dollars invested in stockpiles of crude rubber.

"Estimates have been made of the potential cost of the new rubber in large scale production by Goodrich-Gulf Chemicals, Inc. scientists. They presently believe the new rubber can be marketed at a price which would be competitive with the prices that have been prevailing on crude rubber during 1955. The new material would not be in direct competition with GR-S synthetic rubber but with the tree-grown product," the Goodrich president declared.

Another copy of RUBBER AGE needed in your office? Use the coupon on page 787.

SEVERAL CHANGES IN PRODUCTION PERSONNEL ANNOUNCED BY GOODYEAR



Top row (left to right): W. H. Rudder; R. A. Jay; F. B. Conrad. Bottom row (left to right): J. Q. Shaul; B. M. Stephens; R. C. Helwig.

Personnel changes affecting several production employees at the Goodyear Tire & Rubber Co., have been announced by Russell DeYoung, vice-president in charge of production. W. H. Rudder, formerly manager of the company's tire plant in Topeka, Kansas, has been named assistant to Mr. DeYoung. He will concentrate his efforts on tire production. R. A. Jay, previously manager of Goodyear's industrial rubber products plant at Lincoln, Nebraska, has also been named an assistant to Mr. DeYoung. Mr. Jay will be associated with industrial products production. F. B. Conrad, formerly superintendent of Plant 2 in Akron, has been named manager of the Topeka plant, succeeding Mr. Rudder. J. Q. Shaul, previously division foreman, Tire Division, Plant 1, has assumed the post of superintendent of Plant 2, tires and reclaim. B. M. Stephens, formerly assistant superintendent of the Industrial Products Division, Plant 2, Akron, has assumed the post left by Mr. Jay at the Lincoln plant. R. C. Helwig, previously division foreman, calender room, Plant 2, has succeeded Mr. Stephens as assistant superintendent of industrial products.

Mr. Rudder was graduated from Alabama Polytechnic Institute in 1928 and joined Goodyear the following year. He was named plant manager at Topeka in 1947. Mr. Jay was graduated from Iowa State College and joined the company in 1939. He was named manager of the Lincoln plant in 1948. Mr. Conrad was graduated from Ohio State University and joined Goodyear a short time later. He was named superintendent of Plant 2 in 1954. Mr. Shaul attended the University of Akron and joined the company's Tire Division in 1933, where he has served continuously. Mr. Stephens was graduated from the University of Iowa and joined Goodyear in 1947. He served on supervision, special assignment and as assistant superintendent of the Industrial Products Division before being appointed to his latest post. Mr. Helwig's service with the company dates from 1928. He was graduated from Ohio Wesleyan University and was named division foreman of the company in 1946.

Largest Cast Tire Mold

Morris Bean & Co. of Yellow Springs, Ohio, has produced and shipped what is said to be the world's largest cast tire mold. Made of aluminum and weighing 1,800 pounds, the cast tread ring and its mate will be used by the Goodyear Tire & Rubber Co. in the manufacture of tires for road-building equipment. The casting, produced by applying the "Antioch Process" of molding, was developed by Morris Bean between 1930 and 1936 as the result of a research program seeking a better mold material for non-ferrous castings. Aluminum alloys cast in Antioch Process molds are said to have high physical properties, smooth and accurate contours and are free of sub-surface and internal porosity.

WEST GERMANY READIES PLANS FOR PRODUCTION OF SYNTHETIC

According to recently-published reports in the New York *Journal of Commerce*, plans for large-scale production of synthetic rubber in West Germany have been readied and are awaiting the go-ahead signal. A plant with an annual capacity of 45,000 tons is to be erected on the site of the Chemische Werke Huels A.G. of Marl. If things go according to schedule, construction will start this fall and production should get under way by late 1957.

The project will be handled by a newly formed company, the Buna Werke Huels G.m.b.H., of which Chemische Werke Huels holds 50% of the share capital, while the other 50% is split three ways among the main successor companies of the I. G. Farben Corp., namely the Badische Anilin & Soda-Fabrik of Ludfigshafen; the Farbwerke Hoechst A.G. of Hoechst; and the Farbenfabriken Bayer A.G. of Leverkusen.

Management of the new company will be in the hands of Dr. Paul Baumann, chief executive of the Chemische Werke Huels, which until now has been producing synthetic rubber at the rate of 500 tons a month, the volume permitted to West Germany before it became sovereign. Dr. Baumann is no stranger in the United States, where he resided several years before the war and has been a frequent visitor since the end of hostilities.

American synthetic rubber production methods also will play a vital part in the set-up of the DM 140,000,000 ($33,300,000) German project, Dr. Baumann said here recently. Even now the Huels plant is exchanging ideas and experience with American producers.

Obtaining Necessary Butadiene

The butadiene which will be the base product for the German synthetic rubber, and of which some 30,000 to 36,000 tons per year will be needed, will be obtained by the dehydration of normal butane which in turn will be made available by German and other West European refineries. Delivery assurances for butane have been received from the Esso A.G. in Hamburg and from the B. P. Benzin-und Petroleum-Gesellschaft m.b.H., also in Hamburg.

Dr. Baumann emphasized that, on the one hand, German synthetic rubber output is needed because of the growing world rubber shortage, and, on the other hand, production both relatively and absolutely will be on a much smaller scale here than in the United States.

After completion of the projected plant, the synthetic product will cover only about 30% of the anticipated 1957 German rubber demand of 150,000 tons (it was about 143,000 tons last year), whereas in the United States it now accounts for nearly 60% of rubber consumption, current figures indicate.

German tire factories, he added, are too small to follow the American example of setting up their own synthetic rubber production facilities. Because of the much higher unit production in the States, it will not be easy for Germany to arrive at the same cost price, especially since the wages factor which usually operates in favor of European countries is rather insignificant. The Huels plant will be so highly automatic that it will need the services of no more than 400 men, including all repair teams.

Financing is a hurdle which still has to be cleared. The main question at this stage, on which action is expected some time in September, is whether the Federal and the Northrhine-Westphalia state governments will each guarantee loans of DM 30,000,000, which would then be sought in the open market. Protection against possible losses in the initial production period has been promised by the Association of the German Rubber Industry, which is anxious to secure adequate supplies for its members.

There was some disposition in German circles to postpone the setting up of a major German plant until the effect on prices, etc., of handing over the American plants to private enterprise has become evident. Considering the anticipated shortage by 1957, the feeling was, however, that it would be dangerous to wait too long. On the other hand, the construction of one German plant was viewed as sufficient, at least for some time to come.

Production of the former Buna Werke Schkopau in the East Zone, now called Chemische Werke Buna, is said to be around 60,000 tons annually, but little is known here about the condition of machines and other installations there.

In connection with the setting up of the new Buna Werke Huels, it has been stated emphatically that no arrangements going beyond the production of synthetic rubber have been entered by the four participating corporations. The choice of partners, Dr. Baumann said, was dictated by the fact that they employ the principal experts in this field.

In connection with Chemische Werke Huels business in 1954, Dr. Baumann reported an increase of sales from DM 315,000,000 in 1953 to DM 386,000,000. Exports made up more than 35% of the turnover, but prices were, and still are, exposed to a good deal of pressure. Last year was the first in which the corporation had been freed from Allied control. It was also a year of considerable new investments.

Chlorowax 50 Chlorinated Paraffin

Development of a new, high viscosity, liquid chlorinated paraffin with 50% chlorine content has been announced by the Chlorinated Products Division of the Diamond Alkali Co., Cleveland, Ohio. The product, known as "Chlorowax 50", is said to provide a new standard of color and heat stability for chlorinated paraffin materials of this chlorine content. A viscosity of 125 poises and a chlorine content 25% higher than is available in normal 40% liquid chlorinated paraffins are said by the manufacturer to also make Chlorowax 50 suitable for plastics and paints as a flame retardant liquid plasticizer. Supplementing Chlorowax 40, the new development broadens Diamond's growing line of liquid and solid chlorinated paraffins. Odor-free, non-toxic and non-flammable, it is packed in steel drums, 525 pounds net, for shipment from Painesville, Ohio.

LETOURNEAU "TREE CRASHER" SAID TO USE WORLD'S LARGEST TIRES

R. G. LeTourneau, Inc., Longview, Texas, builder of the world's largest land-clearing equipment, has announced the development of the "Tree Crasher", a six-wheeled unit which is said to travel on the largest tires in the world. Each wheel of the Tree Crasher measures four feet wide and is ten feet tall. The machine has been purchased by a Florida concern for land-clearing work along the Florida-Georgia border. Instead of receiving power from one central drive, each of the six mammoth wheels has within its rim an individual electric motor and gear reduction. These motors are driven by generators which, in turn, are driven by two giant diesel engines near the center of the unit. Designed to uproot heavy trees and underbrush with push-button ease, the machine is still so light on its feet that it can roll over a pocket watch without damaging it. The secret of the light "weight" of the 120,000 pound vehicle is said to lie with its tires, each of which is reported to cost something over $5,000. Because of their gigantic dimensions, and because they can operate with air pressures as low as five pounds, the actual per square inch weight of the machine upon the ground is about the same as that of a walking man. Such an extreme degree of flotation, and the powerful motors for each wheel, make the unit particularly well-suited for work in swampy or sandy areas where other equipment would find it impossible to operate.

SOUTH TEXAS TIRE TEST FLEET OUTLINES OPERATING PROCEDURE

Pertinent details as to the formation and method of operation of the South Texas Tire Test Fleet, P. O. Box 95, Devine, Texas, have recently become available. The company was organized on June 22, 1953 by A. J. "Al" Morrow, who has a long background in tire test operations through his association with a government test fleet and in private research activities.

At the time the company was formed it had three cars and employed nine drivers. Today the company runs fifteen cars, one 1-ton pickup, and four truck trailers. Some sixty drivers are employed in addition to office and shop personnel. The concern is now in a position to handle any size automobile or truck tire.

Mr. Morrow emphasizes that South Texas Tire Test Fleet is a wholly-independent company with no ties with any rubber or tire manufacturer. The findings procured for each client are marked "secret" and are available only to the client.

The company performs rigidly controlled tests to determine the general performance of tires, covering such points as tread wear, body durability, noise, steering maneuverability, and safety-stop ability. A close check is maintained on weather conditions and temperatures.

The company emphasizes that tests are conducted under uniform conditions of load and terrain providing results in about one-half the time required by conventional road tests. The uniformity of conditions provides test results which are comparable to those conducted months apart under less favorable circumstances.

In operation, South Texas passenger cars operate 350 miles per shift; 3 shifts per day, 6 days per week; a total of 6,300 miles per unit each week. Tractor trailer units operate 280 miles per shift; 3 shifts per day, 6 days per week; a total of 5,040 miles per week. The company maintains its own shop for all mechanical repairs on test units. Each unit is thoroughly serviced and checked each week.

South Texas Tire Test Fleet is now conducting tire tests for tire companies, carbon black manufacturers, brake lining producers, synthetic rubber producers, chemical companies, etc.

Reorganizes Research Facilities

Stein, Hall & Co., Inc., has announced the reorganization and expansion of its research facilities for adhesives at Long Island City, N. Y. The Liquid Adhesive Laboratory and the Stein-Davies Laboratory have been combined into one unit which is designated as the Stein Hall Adhesive Laboratory, and the following new appointments have been made: Tom G. Heiser, director of adhesive research; Bill Neuss, chief chemist, adhesive technical service; L. Zyzyck, chief chemist, adhesive research and development; and F. Littenberg, chief chemist, quality control.

Hobbs Manufacturing Co., 331 Salisbury St., Worcester, Mass., has issued a brochure describing the company's concept of combining winding machinery and winding engineering in one "package" service.

FIG. 1—Headquarters of the South Texas Tire Test Fleet with some of the test vehicles assembled. FIG. 2—Weighing tires to the closest ounce, one operation conducted by the company. FIG. 3—Test tires are shown here being marked for uniform measuring points. FIG. 4—A tacograph in each test vehicle records speed, stops, miles, time, etc.

Goodrich Research Appointments

B. F. Goodrich Research Center, Brecksville, Ohio, has announced several new appointments. Dr. William H. Brandt has joined the organic chemicals research group. He received his B.A. from Montana State University in 1950 and earned his masters' and doctors' degrees in botany from Ohio State University. Dr. G. Donald Munger has joined the staff of the center with responsibility for fungicide evaluation. He received his B.S. and M.S. degrees from the University of Delaware and his doctors' degree in botany and plant pathology from Ohio State University. He was formerly employed as principal plant pathologist at Battelle Memorial Institute. Dr. Robert W. Layer, a recent Ph.D. graduate in chemistry of the University of Cincinnati, has joined the Research Center as a research chemist. He was formerly associated with the Naugatuck Chemical Division of the U. S. Rubber Co.

Awarded Litchfield Medal

Two research scientists of the Goodyear Tire & Rubber Co., Akron, Ohio, were honored recently for their roles in the development of the company's tubeless tire. F. W. Drew, manager of fabric design, and G. D. Mallory, head of textile research, were presented with the Litchfield Special Award of Merit gold medals. P. W. Litchfield, chairman of the board and founder of the 27-year old award, presented the medals to the men before a group of the firm's top level executives and technical experts. This marked the first time that the award has been given for a joint research achievement. Only on five previous occasions has it been presented for technical accomplishments. Mr. Drew joined Goodyear in 1925 as did Mr. Mallory.

Tire and Tube Prices Raised

On August 1, 1955, the Goodyear Tire & Rubber Co., B. F. Goodrich Co., Firestone Tire & Rubber Co., and the U. S. Rubber Co. announced increases in the prices of tires and tubes produced by each. It was expected that other companies in the field would soon fall into line. In general, the price adjustments called for a 3¼% increase in the price of passenger car, truck, farm and industrial tires. The price of all inner tubes and solid industrial tires was increased 6%. Price increases were attributed to higher material costs, particularly natural rubber, and higher employment costs. The price increases were the fourth announced since last November. At that time, prices were increased by 2½ to 5%. In January of this year, prices were again increased by 2½ to 5%. Another price rise was announced in February of this year, this time increases ranged from 2½ to 7%. Following the August 1 announcement of the "big four," General Tire, Armstrong Rubber and Lee Rubber also increased their prices.

Promotions at Columbian Carbon

Carl W. Sweitzer, who has been associated with the Research Department of Columbian Carbon Co. for 28 years and for the past four years in charge of its Research Laboratories in Brooklyn, N. Y., has been appointed director of research and development of the Carbon Black and Pigment Division of the company as of July 1, 1955. George L. Heller, who has been in charge of the company's development program in Monroe for the past 15 years, will continue in that position as director of development. H. A. Braendle, member of the Columbian research organization for 28 years and director of various phases of the research work, has been named assistant to the vice-president.

RECORD ATTENDANCE FEATURES ANNUAL DETROIT GOLF OUTING

More than 600 members and guests set a new attendance record for the Golf Outing held by the Detroit Rubber and Plastics Group on June 24 at the Western Golf and Country Club. Approximately 270 members and guests participated in the golf tournament. Tom Draper (Schenectady Varnish) took low gross honors with a 74 and was awarded the new Detroit Rubber and Plastics Group Cup. Among the guests, Cliff Greeneisen (Firestone Industrial Products) also posted a 74. Third low gross went to C. Petosky who scored 80. Other golfing events and their winners included:

Longest Drive, Bill Innis and Stan Albertson; *Closest-to-Hole,* Pane Bergman and Norbert Crowe; *Peoria Handicap,* A. J. Bayler, W. F. DeLong; H. Richardson and Bob Watt; *Low Total on Par Three Holes,* Cliff Greeneisen; *Kicker's Handicap,* M. de Smitt; *High Gross,* T. Eastburn; *Kicker's Raffle,* J. Darin, J. Duchine, W. Whimburg, W. V. Kaul, L. Woerner and R. Horner.

W. D. Wilson (R. T. Vanderbilt) served as general chairman of the Outing Committee. J. F. Stiff (Columbian Carbon) functioned as assistant general chairman and also headed the Golf Committee. Other committees and their members included the following:

Prize Committee, Ken Brands and Gale Sharp (Minnesota Mining); *Banquet Arrangements,* Lee Peck (Peck Engineering); *Ticket Distribution,* Harold Jacober (Baldwin Rubber) and Ed Post (Detroit Rubber); *Entertainment,* Bob Chilton (Permalastic). Other committee members included Jack Masden (U. S. Rubber), John Craft (General Tire), Bud Jarvis (Wyandotte Chemicals), Sam Schaffer (U. S. Rubber) and Ed Kvet (Detroit Arsenal).

Boston Group Holds Outing

The nineteenth Annual Outing of the Boston Rubber Group was held on June 17 at the Andover Country Club, Andover, Mass. A full schedule of games and sporting events was offered. After the day's activities, approximately 560 members and guests enjoyed a lobster dinner. David W. Kirkpatrick (Chase-Walton Elastomers) served as chairman of the Outing Committee. He was assisted by Roger Stellar (Goodrich Chemical) and Harry Atwater (Malrex Chemical). The directors of the various events were as follows: J. Breen (golf tournament); E. F. Freeman (softball game); J. Fitzgerald (putting contest); L. Murray and A. Panzeri (darts); J. Cullen (Horseshoes); C. Meyer (horse racing); and L. Wescott (tub and ball game).

American Collo Corp., Ridgefield, N. J., has published a general release describing the increasing uses of "Collo Allfoam" in industry.

B. F. Goodrich Industrial Products Division, Akron, Ohio, has published a new data sheet on its line of municipal fire hose.

Coming Events in the Rubber Industry

Sept. 17. Connecticut Rubber Group, Summer Outing.

Sept. 22. Southern Ohio Rubber Group, Fall Meeting, Engineer's Club, Dayton, Ohio.

Sept. 23. Northern California Rubber Group.

Sept. 25. Northern California Rubber Group, Annual Family Summer Outing.

Sept. 29. Fort Wayne Rubber & Plastics Group, Hotel Van Orman, Fort Wayne, Ind.

Oct. 4. Buffalo Rubber Group, Fall Meeting, Hotel Westbrook, Buffalo, N. Y.

Oct. 4. Los Angeles Rubber Group, Statler Hotel, Los Angeles, Calif.

Oct. 7. Chicago Rubber Group, Furniture Club, Chicago, Ill.

Oct. 7. Detroit Rubber and Plastics Group, Fall Meeting, Detroit-Leland Hotel, Detroit, Mich.

Oct. 7. New York Rubber Group, Fall Meeting, Henry Hudson Hotel, New York, N. Y.

Oct. 14. Boston Rubber Group, Fall Meeting, Somerset Hotel, Boston, Mass.

Oct. 14. Northern California Rubber Group.

Oct. 28. Akron Rubber Group, Mayflower Hotel, Akron, Ohio.

Oct. 28. Philadelphia Rubber Group, Fall Meeting, Poor Richard Club, Philadelphia, Penna.

Nov. 1. Los Angeles Rubber Group, Statler Hotel, Los Angeles, Calif.

Nov. 2-4. Division of Rubber Chemistry, A.C.S., Fall Meeting, Bellevue-Stratford Hotel, Philadelphia, Penna.

Nov. 3. Rhode Island Rubber Club, Fall Meeting, Pawtucket Country Club, Pawtucket, R. I.

Nov. 10. Northern California Rubber Group.

Nov. 11. Chicago Rubber Group, Furniture Club, Chicago, Ill.

Nov. 13-18. American Society of Mechanical Engineers, Diamond Jubilee Annual Meeting, Hotel Congress, Chicago, Ill.

Nov. 18. Connecticut Rubber Group, Fall Meeting.

Dec. 1. Fort Wayne Rubber and Plastics Group, Hotel Van Orman, Fort Wayne, Ind.

Dec. 7. Buffalo Rubber Group, Xmas Party, Buffalo Trap and Field Club, Buffalo, N. Y.

Dec. 9. Detroit Rubber and Plastics Group, Annual Christmas Party, Sheraton-Cadillac Hotel, Detroit, Mich.

Dec. 9. New York Rubber Group, Xmas Party, Henry Hudson Hotel, New York, N. Y.

Dec. 10. Southern Ohio Rubber Group, Xmas Party, Miami Valley Golf Club.

Dec. 16. Boston Rubber Group, Xmas Party, Somerset Hotel, Boston, Mass.

Dec. 16. Chicago Rubber Group.

Dec. 16. Los Angeles Rubber Group, Xmas Party, Ambassador Hotel, Los Angeles, Calif.

Directors Approve Merger

The directors of the Byron Jackson Co., Los Angeles, Calif., have approved the proposed merger with the Borg-Warner Corp. of Chicago, Ill., and set August 23 as the date for a special meeting of the stockholders to act on the proposal. The Borg-Warner board previously approved the merger agreement by which four of its shares would be exchanged for five shares of Byron Jackson. Both companies are active in the rubber field, Borg-Warner through its Marbon Chemical Division, and Byron Jackson through its PB Division. Under the proposed merger agreements, Byron Jackson would act as an independent division within Borg-Warner.

Tumb-L-Matic, Inc., 4510 Bullard Ave., New York 70, N. Y., is offering a new, two-color bulletin that describes and illustrates LS Tumbling Barrels for large scale, low cost finishing operations.

Phillips Chemical Appointments

Phillips Chemical Co., Akron, Ohio, has announced three appointments to fill new positions in the recently-created Plastics Sales Division which will handle sales of "Marlex", the new polyethylene produced by the Phillips Petroleum Co., parent company of Phillips Chemical. Walter R. Clark has been promoted to assistant sales manager; R. Vernon Jones has been advanced to manager of technical service and development, and R. M. Wallace has been made administrative assistant and coordinator of the new division which is headed by George Wash, director and sales manager. Mr. Jones, in applications research, and Mr. Clark, in market development work, have been closely connected with Marlex through developmental stages of the product. Mr. Wallace has been on loan to the Federal Facilities Corp., Washington, D. C., as chief of the Plant Operations Division, Office of Synthetic Rubber.

MARINE MAGNESIUM DIVISION OPENS RUBBER LABORATORIES

A new rubber research laboratory, unique in that it is specifically designed for testing magnesium products for the rubber industry, has been put into operation by the Marine Magnesium Division, Merck & Co., Inc., at South San Francisco, Calif.

Established in recognition of the ever growing importance of magnesium compounds in rubber technology, the new facilities, designed by Merck engineers, include completely equipped rubber and chemical laboratories for developing and pilot testing new and improved magnesium compounds.

In commenting about the facilities, Dr. L. F. Heneghan, manager of research and development at Marine Magnesium, said, "While heretofore our testing was carried out on a limited scale, now we not only can get more test results quicker, but, more important, we can look into the 'why' as well as the 'what' on known and new magnesium compounds in all types of rubber."

With its new investigation facilities, the Merck Marine Magnesium Division is particularly well adapted to research in improving such essential characteristics as scorch protection in Neoprene. Chemical analysis equipment and application test facilities enable Merck to insure optimum standards in its magnesium oxide products for compounding all elastomers.

No novice in the development of magnesium substances, Marine Magnesium originated in 1927 as Marine Chemicals Co., Ltd., and was the pioneer in the field of recovering magnesium salts from sea water. In addition to their use in the rubber industry, magnesium products are important to the manufacture of steel, electric components, drugs, salt, printing ink, paint and toilet preparations. The firm was acquired by Merck & Co., Inc. in 1951.

Research has long been a hallmark of Merck, whose scientists in the past two decades have contributed significantly to the development of vitamins, antibiotics, sulfonamides, and hormones. Merck today is a world-wide organization whose products play notable roles in various branches of science and industry including on an increasing scale, the technology of rubber.

Shown above are two views of the new rubber research laboratory recently opened by the Marine Magnesium Division of Merck & Co. At the top is seen the chemical research laboratory which provides complete testing facilities for the chemical analyses related to evaluation and development of magnesium products. Seen at the bottom is some of the processing equipment which has been installed at the rubber laboratory, including a rubber mill and a curing press.

Chemical Industries Exposition

Heavy reservations for the "Silver Anniversary" Exposition of Chemical Industries forecast one of the greatest displays in the 40-year history of that institution. Current applications are rapidly taking up the space remaining for allotment in the Commercial Museum and Convention Hall at Philadelphia, Penna., where the exposition will be held December 5 to 9, 1955. Many interesting exhibits are planned. Chemical products shown will include substances produced by chemical methods, such as adhesives, catalysts, emulsions and emulsifiers, plasticizers, resins, solvents, filter aids, and waterproofing as well as wetting chemicals. The exposition continues under the management of the International Exposition Co., 480 Lexington Ave., New York 17, N. Y.

Seeks to Acquire Rawlings

A. G. Spalding & Bros., Inc., Chicopee Falls, Mass., is negotiating to acquire Rawlings Manufacturing Co. of St. Louis, the country's fourth largest sporting goods manufacturer, Walter B. Gerould, Spalding president, announced recently. Mr. Gerould emphasized, however, that talks were in a "very preliminary stage and no decisions have been made." He said he was hopeful something will be accomplished within the next few weeks. Rawlings manufactures items in the sports field not currently produced by Spalding. These include football protective equipment, mitts and gloves, uniforms and other sports clothing. While Spalding does merchandise some of these lines, they are not manufactured by Spalding. According to Mr. Gerould, mitts and gloves are Rawlings' strong line.

The Spalding president said if the deal is accomplished it will not result in closing either the Spalding plant at Chicopee or the Rawlings plant in St. Louis. A substantial block of Rawlings stock is held by one person. The St. Louis plant employs approximately 800 persons. In opening talks toward acquiring the Rawlings plant, Spalding is reversing an earlier situation this year when it was the object of a proposed purchase by American Machine & Foundry Co. of New York, N. Y. Talks were conducted from April until May 20 when Spalding directors rejected the A.M.F. offer based on an exchange of stock.

Goodyear Technical Men Honored

Four technical men of the Goodyear Tire & Rubber Co. who made outstanding contributions during 1954 to product improvement, were honored recently by the firm. M. B. Riggs, chief engineer, auto tire development; J. A. Loulan, Jr., product development, and Ronald Renninger and Paul Angle, the latter two both tire engineers, were presented plaques symbolizing the Dinsmore Merit Award for their accomplishments. Mr. Riggs' plaque was in recognition of his work on the development of the company's tubeless tire. Mr. Renninger was cited for the development of the Bag-O-Matic method for curing tires. Mr. Louland's award came as a result of his organizing a system to exchange technical information among the various Goodyear plants. Mr. Angle was honored for a development which improved white sidewall construction and appearance.

FTC CHAIRMAN DEFENDS ACTIONS IN FIRESTONE DISCOUNT CASE

In recent testimony before a House of Representatives Small Business Subcommittee, Edward F. Howrey, chairman of the Federal Trade Commission, said he had never done "an unethical thing". He made this point in saying he had leaned over backward in taking a position adverse to a former client of his, the Firestone Tire & Rubber Co. of Akron, Ohio. The subcommittee is inquiring into why the Justice Department did not ask the Supreme Court to review an anti-monopoly finding by the FTC against Firestone, which the Federal Court of Appeals had reversed.

Mr. Howrey said that he represented Firestone before becoming a member of the FTC in 1953, but withdrew from his law firm at that time. Mr. Howrey gave this review of the case:

In 1951, the FTC set up a quantity limit rule in regard to tires and tubes, and nineteen tire and rubber companies, including Firestone, filed actions in District Court opposing the rule. In 1952, the District Court dismissed the actions and ruled against the rubber companies. Mr. Howrey represented Firestone during these proceedings.

Mr. Howrey withdrew from the case in 1953 when he became chairman of the Federal Trade Commission. The Court of Appeals in 1953 reversed the District Court and held for Firestone and the others.

When a question arose whether the FTC should ask the Justice Department to request a review of the case by the Supreme Court, Mr. Howrey said, he disqualified himself from participating in it because of his former connection with Firestone. He added, however, that he went to Robert Stearn, acting Solicitor General, and urged that a Supreme Court ruling be obtained. "I took a position adverse to my ex-client," Mr. Howrey declared.

Goodrich Gets Radiation Unit

What is said to be the largest package of atomic material especially designed for use in industrial research was recently shipped from the Brookhaven National Laboratory, Upton, N. Y., to the B. F. Goodrich Research Center, Brecksville, Ohio. Wrapped in a five ton lead and steel "pig", the high-energy radiation source comprises four one-pound slabs of cobalt 60 which will be used by Goodrich scientists in studies aimed at improving rubber and plastics. This is not only the largest, but the first radiation facility to be packaged in a container designed by a private company's scientists to their own specific requirements.

Heads New England Tape

Howard M. Wilkoff, formerly vice-president of the New England Tape Co., Hudson, Mass., has been elected president and treasurer of the company. New England Tape produces extruded plastics, organosols and plastisols. Mr. Wilkoff formerly was president of Plastic Sheet Fabrication, Inc., which recently was merged with New England Tape.

Kratz Announces Retirement

George D. Kratz

George D. Kratz, associated with the rubber industry for almost fifty years, has announced his retirement. Born in Akron, Ohio, on January 9, 1889, Mr. Kratz first entered the rubber industry in 1906 when, during summer vacations, he worked at the old Diamond Rubber Co. After graduating from Cornell University in 1912 with a B. Chem. degree, Mr. Kratz joined Diamond Rubber as a research chemist. In 1914, he joined the Norwalk Tire & Rubber Co. as chemist. He remained until 1918, when he joined the Falls Rubber Co. of Akron, Ohio. In the period from 1918 to 1929, Mr. Kratz held the positions of chemist, general superintendent, sales manager, vice-president, and finally, president.

From 1930 until 1942, Mr. Kratz was in business for himself as a chemical consultant. During the period 1934 to 1942, Mr. Kratz also represented the General Latex & Chemical Corp. of Cambridge, Mass., on the sale of their products in the New York Metropolitan Area. From 1942 to 1945, Mr. Kratz served with the Rubber Reserve Corps of the Reconstruction Finance Corporation on the development of GR-S and other rubber latices. From 1945 to 1947, Mr. Kratz was vice-president in charge of development for Norwalk Tire & Rubber. In 1947, Mr. Kratz returned to his consulting practice and resumed his representation of General Latex. During his long career in the rubber industry, Mr. Kratz has contributed to the literature and holds several patents. Although he has retired from the rubber industry, Mr. Kratz is still active in business. He now operates Buck Greenhouses, Washington C.H., Ohio.

Osborn Consolidates Offices

C. J. Osborn Co. has announced the consolidation of its executive and purchasing offices with the laboratory and plant at 1301 West Blancke St., Linden, N. J., effective July 1. For the convenience of its customers, C. J. Osborn will maintain its New York telephone number: BEekman 3-3994. The telephone number at Linden is: HUnter 6-8040.

SEES DECLINE IN CONSUMPTION DURING SECOND HALF OF 1955

Use of new rubber in the United States will decline during the second half of this year and the use of natural rubber will fall off more rapidly than synthetic rubber, J. P. Seiberling, president of the Seiberling Rubber Co., Akron, Ohio, predicted recently. "Estimates developed for the International Rubber Study Group show the United States will use a record 1,400,000 long tons of rubber this year, about 5% higher than the previous record of 1,338,000 long tons in 1953," Mr. Seiberling said.

"Actually, about 772,000 long tons of rubber were used during the first half of the year, but a somewhat lower level of production of new automobiles and trucks expected for the second half should bring a decline in the use of new rubber to about 628,000 long tons, or 18% less than in the first half," he pointed out.

"About 57%, or 441,000 long tons, of the new rubber used in the first six months was synthetic and 43%, or 331,000 long tons, was natural rubber," he added. "The first half ratio of 57% synthetic rubber will probably increase to at least 60% in the second half, and the fall in natural rubber usage could amount to as much as 80,000 long tons, or 23% less than was used in the first half," Mr. Seiberling continued.

"Private ownership of synthetic rubber producing facilities, continuing quality and uniformity improvements in synthetic rubbers, and the unjustified high speculative prices of natural rubber all combine to establish United States synthetic rubber consumption on a permanently higher level," he declared.

U.S. Rubber Obtains Loan

U. S. Rubber Co., New York, N. Y., has announced that it has completed arrangements for the private placement of a long term loan of $60,000,000 for plant expansion and working capital. Of the total amount, $37,500,000 will be taken down at once and $12,500,000 on or before December 15, 1956. The remaining $10,000,000 will be on option until July 15, 1957. Rate of interest is 3¾%. Regular sinking fund payments will fit in conveniently with the company's funded debt retirement schedule. The addition of the $37,500,000 to be taken down at once will bring the company's long term debt to a total of $157,916,000, of which $2,416,000 will be due on April 1, 1956. Thereafter, sinking fund payments will be approximately $4,500,000 annually until 1995, assuming that all the balance of the new loan is taken down.

General Tire Promotes Grubaugh

Wayne N. Grubaugh has been appointed purchasing agent for the Bolta Division of the General Tire and Rubber Co., Lawrence, Mass. Mr. Grubaugh succeeds Francis Jones, who has been assigned to organize the division's production scheduling department. A native of Akron, Ohio, Mr. Grubaugh was graduated from Kent State University in 1949. He saw service in World War II as a bombardier-navigator.

Curtis Announces Retirement

E. B. Curtis

Ernest Baine "Curly" Curtis, associated with the R. T. Vanderbilt Co., New York, N. Y., since 1936, has announced his retirement. Mr. Curtis has spent more than 42 years in the rubber industry. Born in Martinsville, Ind., on April 14, 1890, Mr. Curtis was graduated from the University of Indiana in 1912 with a B.A. degree and the following year he received his M. A. degree. In 1913, Mr. Curtis joined the New York Belting and Packing Co., a subsidiary of U. S. Rubber. In 1915, Mr. Curtis was transferred to U. S. Rubber's general laboratories in New York City where he remained until the autumn of 1924. During the last five years of this period, he was assistant to the director of the laboratories. In 1924, when the Naugatuck Chemical Co. was expanding its line of chemicals and other products, Mr. Curtis was transferred to that U. S. Rubber division and was placed in charge of sales. In 1930, Mr. Curtis was elected a vice-president of Naugatuck Chemical.

In 1936, after twenty-three years with U. S. Rubber, Mr. Curtis resigned and joined the R. T. Vanderbilt Co. as assistant to Dr. A. A. Somerville. For the past nineteen years, Mr. Curtis has been actively identified with sales to the rubber and allied industries. During his long career in the rubber industry, Mr. Curtis has been active in affairs of the American Society for Testing Materials and the American Chemical Society. He served as chairman of the Division of Rubber Chemistry, A.C.S., in 1939-40. During World War II, he served on the War Production Board. A special testimonial dinner was tendered to Mr. Curtis on July 29 at the Chemists' Club in New York City by his many friends in the rubber industry.

New Twister for Tire Cord

The Deering Milliken Research Corp., New York, N. Y., has developed a new tire cord twisting machine which was shown at the Second International Textile Exposition, held recently in Brussels, Belgium. The new twister takes rayon or nylon yarn directly from the manufacturer's cone, pirn or tube, and produces a finished tire cord in one process on a single spindle at a speed of 8,000 to 10,000 revolutions a minute.

Constructing Butadiene Facility

Texas Butadiene & Chemical Corp., Houston, Texas, has announced plans to proceed immediately with the construction of a privately financed $26,000,000 alkylate-avgas and butadiene plant in the Houston area. Estimated date of completion is December, 1956. Equity capital is being provided by Carl M. Loeb, Rhoades & Co., New York investment bankers and by Godfrey L. Cabot, Inc., Boston, Mass., largest single stockholder in the new enterprise. E. L. Green, Jr., vice-president of a Cabot subsidiary, Cabot Carbon Co., has been elected president of TB&CC. As part of the defense program for expanding the nation's alkylate-avgas facilities, the Armed Services Petroleum Purchasing Agency has awarded the new company a facilities contract. The Office of Defense Mobilization has issued a Certificate of Necessity permitting rapid amortization of the investment.

This is the first plant of its type in that it will combine well-established processes to provide unique operating flexibility. It will produce finished aviation gasoline, or alternately, alkylates for blending into commercial motor fuels, and butylenes. At the same time it will produce butadiene for synthetic rubber, nylon and other end products. All of these materials are essential to a peace or wartime economy and rapid conversion can be made to meet military or civilian needs as required. The Armed Services Petroleum Purchasing Agency requirements will, therefore, determine the pattern of operation for the facilities. Capacities range from an annual production of 2,500,000 barrels of avgas with 17,000 tons of butadiene, through diminishing quantities of avgas and increasing quantities of butadiene to an annual 43,000 tons of butadiene alone.

Receive New Division Award

John S. Rugg and George W. Scott, chemists of E. I. du Pont de Nemours & Co., Inc., Wilmington, Del., have been named as the first winners of a new award of the Division of Rubber Chemistry, American Chemical Society, according to John M. Ball (Midwest Rubber Reclaiming), chairman of the division. The award is for the best scientific paper presented before the division at its three-day Spring Meeting in Detroit in May. Mr. Rugg and Dr. Scott were cited for the technical importance of their paper and for the high quality of the oral and visual presentation. Mr. Rugg presented the paper at the Detroit meeting. The report, which was entitled "'Adiprene' B Urethane Rubber—Factors Influencing Its Processability," described methods for processing the tough, temperature-resistant new synthetic. It was judged the most outstanding of the 26 technical treatises on the program by a five-member Best Papers Committee. The award was established by the Division to help maintain the high standard of quality of the papers presented at its technical sessions.

Another copy of RUBBER AGE needed in your office? Use the coupon on page 787.

Joins National Polychemicals

Jean H. Nesbit

National Polychemicals, Inc., Wilmington, Mass., has announced the appointment of Jean H. Nesbit as midwestern sales representative, covering New York, Ohio, western Pennsylvania, eastern Indiana and eastern Michigan. Mr. Nesbit, widely known throughout the rubber industry for many years, was first associated with the Mohawk Rubber Co. as a sales representative. In 1920, he joined the U. S. Rubber Reclaiming Co. as a sales representative. Later, he became vice-president in charge of sales and in 1943 was elected president, a post he held until 1953 when he became chairman of the Executive Committee. During World War II, Mr. Nesbit acted as a member of the Rubber Industry Advisory Board and also as a member of the Army and Navy Munitions Board. He served as president of the Rubber Reclaimers Association in 1944 and 1945 and as chairman of that organization's Executive Committee from 1945 to 1954.

ASRC Constructing New Dock

A new dock for unloading liquid cargo from river barges will be constructed for the American Synthetic Rubber Corp., Louisville, Ky., according to a recent announcement. The dock will consist of two 18-foot diameter steel sheet pile cells. One of them will be connected to the shore by a 222-foot long walkway that also will carry pipe lines. Due to extreme variations in river levels at this location on the Ohio River, the main cell will be 72 feet above normal water elevation. On top of the main cell, a motor-operated winch is to be installed for handling hose lines to and from barges. The second cell, also used for mooring the barge, is 18 feet in diameter except for the top 30 feet which will be of smaller size.

To Vote on Stock Split

A directors' proposal to split the stock of the Standard Products Co., Cleveland, Ohio, on a two-for-one basis will be voted upon by shareholders at the annual meeting on September 28. The company has 600,000 shares authorized, of which 361,911 shares are outstanding.

Names in the News

DR. E. E. GRUBER, assistant director of research for the General Tire & Rubber Co., Akron, Ohio, has been named chairman of the Akron Section of the American Chemical Society for 1955-56.

TOM M. WATHEN, a member of the training program at the Goodyear Tire & Rubber Co., Akron, Ohio, since early this year, has joined the Diene Synthetic Rubbers Section of the Research Division.

GEORGE F. CLAYTON, former resident attorney and assistant secretary of the Goodyear Aircraft Corp., has been named assistant secretary of the Goodyear Tire & Rubber Co., Akron, Ohio.

JAMES R. FRAZIER, associated with the Goodyear Tire & Rubber Co. since 1951, has been added to the sales operating staff of the Chemical Division.

WILLIAM D. CLAYPOOL has been named executive director of Bassons Industries Corp., New York, N. Y.

HENRY A. THOURON, formerly assistant general manager of the Synthetics Department of the Hercules Powder Co., has been named general manager of the department.

LEE R. JACKSON, president of the Firestone Tire & Rubber Co., returned to the United States on July 26 after an inspection tour of Firestone plants in Europe.

DR. WYLY M. BILLING and JOHN R. L. JOHNSON, JR., members of the board of directors of the Hercules Powder Co., have been elected vice-presidents of the company. Dr. Billing was formerly general manager of the Synthetics Department, while Mr. Johnson has been director of the Legal Department and general counsel.

P. W. LITCHFIELD, chairman of the board of the Goodyear Tire & Rubber Co., returned to the United States on July 26 in time to celebrate his eightieth birthday. Mr. Litchfield had been in Europe on a business trip.

DAVID H. DAWSON, assistant general manager of the Textile Fibers Department of E. I. du Pont de Nemours & Co., Inc., has been elected a director, vice-president and member of the Executive Committee of the company.

BROOKS M. DYER, associated with the Columbia-Southern Chemical Corp. for the past twelve years, has been named head of the Calcium Chloride Sales Group.

EDMUND CLAXTON, director of research for the Armstrong Cork Co., Lancaster, Penna., has been named president of the Building Research Institute, Washington, D. C., technical society for the building industry.

WILLIAM C. FOSTER, former deputy secretary of defense and president of the Manufacturing Chemists' Association, has been named executive vice-president of the Olin Mathieson Chemical Corp.

WILBUR E. COMBS, formerly assistant manager of sales development, has been named sales promotion manager of industrial rubber products for the U. S. Rubber Co.

EDWIN B. NEWTON, manager of polymer utilization research at the Research Center of the B. F. Goodrich Co., Brecksville, Ohio, has completed thirty years of service with the company.

WILLIAM A. MITCHEL, formerly assistant manager of distributing branches for the U. S. Rubber Co., has been appointed manager succeeding Henry G. Noss, who has retired.

M. A. THOMPSON, associated with the Wyandotte Chemicals Corp. since 1943, has been named eastern sales manager for the company's Michigan Alkali Division and will manage the New York office.

DR. J. W. BARRETT, associated with Monsanto Chemicals, Ltd., London, England, since 1941, has been appointed a director of the company.

COLONEL ALFRED M. KOSTER has been appointed chief of the Purchasing Division of the Philadelphia Quartermaster Depot.

CLAYTON E. BRAMAN, formerly assistant cashier for the Seiberling Rubber Co., Akron, Ohio, has been named manager of the Sales Statistics Department.

CHARLES E. O'CONNELL, formerly manager of the Rubber and Produce Department of O. W. Kracht, has joined Joosten & Janssen, New York, N. Y.

JOHN W. DERSCH, formerly associated with the American Cyanamid Co., has been named plant manager of the Pioneer Latex & Chemical Co., Middlesex, N. J., in charge of latex and asphalt emulsion manufacturing operations and engineering.

DR. EDWARD N. LEARNER, associated with the B. F. Goodrich Co. since 1952, has been named senior product engineer in charge of biochemical sales development for the B. F. Goodrich Chemical Co.

FRANK SHERWOOD KING, formerly technical manager of the Tire Division of the Dunlop Tire & Rubber Co., has joined the tire design research department of the Goodyear Tire & Rubber Co.

JAMES H. JOYNER, formerly manager of the Los Angeles, Calif., branch of Quaker Pioneer Rubber Mills, has been named manager of Pacific Coast sales.

Named Honorary I.R.I. Fellow

F. H. Banbury

Fernley H. Banbury, internationally known inventor of the mixer which bears his name, has been unanimously elected an Honorary Fellow of the Institution of the Rubber Industry, London, England. The original Banbury mixer was introduced in 1916, and since that time, Mr. Banbury has obtained twenty-four additional patents covering improvements to the unit. Mr. Banbury retired in 1943 as head of the Banbury Mixer Department of the Farrel-Birmingham Co. However, he still remains active in the capacity of consulting engineer and serves on the company's board of directors. A graduate of Purdue University in 1906, Mr. Banbury was awarded an honorary doctor of engineering degree in June, 1948, by his alma mater.

ERVIN A. YOUNG, vice-president in charge of production of the Ohio Injector Co., Wadsworth, Ohio, recently retired from the company on the occasion of his seventieth birthday. Mr. Young had been associated with the firm for forty-five years.

L. A. MCCAFFREY and W. L. CRONAUER have joined the research staff of the Goodyear Tire & Rubber Co., Akron, Ohio. Mr. McCaffrey has been added to the Process Engineering Section and Mr. Cronauer has joined the cords and fabrics section.

J. AUSTIN BOULAY has been appointed comptroller of the Minnesota Rubber and Gasket Co., Minneapolis, Minn.

W. H. HOBACK, formerly associated with the Devoe & Raynolds Co., Pratt & Lambert, Inc., and the American Cyanamid Co., has joined the National Lead Co. as an assistant to the director of research.

A. T. FIORE, associated with the Sindar Corp., New York, N. Y., for more than twenty years, has been appointed manager of the newly-created Market Development Department.

Goodrich-Gulf Names Morgan

Samuel D. Morgan

Samuel D. Morgan has been named manager of sales operations for Goodrich-Gulf Chemicals, Inc., Cleveland, Ohio. For the past nine years, Mr. Morgan has been on loan from the B. F. Goodrich Co. to the government as chief of the Sales Division of the Office of Synthetic Rubber, Washington, D. C. As such, he had direct responsibility for all sales of synthetic rubber for that period. The sale of virtually all of the government-owned synthetic rubber plants to private industry has now been completed. Goodrich-Gulf Chemicals, a corporation jointly owned by the B. F. Goodrich Co. and the Gulf Oil Corp., was the successful bidder on the Port Neches, Texas, synthetic rubber plant and is one of the largest producers of GR-S. The newly-formed company also owns one-half interest in the world's largest butadiene-producing plant. Further expansion into other phases of petrochemicals is planned. Mr. Morgan joined the B. F. Goodrich Co. in 1942 after studying business administration at Youngstown College. In 1944, he became treasurer of the Hycar Chemical Co., at that time an affiliate of B. F. Goodrich. His governmental appointment came in 1946. Mr. Morgan is a member of the Washington Rubber Group.

Named Engineering Manager

Edward E. Forsythe has been named manager of engineering in the Engineering Department of the B. F. Goodrich Co. Industrial Products Division, Akron, Ohio. A senior engineer in that division before his new assignment, Mr. Forsythe joined Goodrich as a trainee in the physical testing laboratory after receiving his B.S. degree in mechanical engineering from the Carnegie Institute of Technology in 1939. In 1940, he was assigned to the company's Engineering Department at Plant 4, transferring later that year to the Estimating, Drarting and Design Department. From April, 1942, until April, 1946, he served in the U. S. Army as a major in the Corps of Engineers. Mr. Forsythe returned to Goodrich in 1946 as a process engineer in the Processing Division until 1954 when he was named senior engineer in the Industrial Products Division.

Witco Sets Four Sales Regions

Major reorganization of the domestic sales force of the Witco Chemical Co., New York, N. Y., into four regional units, each under the supervision of a resident regional vice-president, has been announced by Max A. Minnig, executive vice-president of the company. Basic reason behind the major realignment is described as a streamlining of the sales operation to provide better customer service and convenience. The four new regions are designated as Eastern, Ohio and Southern, Midwest, and West Coast. "Responsibility for all sales functions in the region now lies with the four vice-presidents who are assuming increased burden," Mr. Minnig said. "This will assure better understanding and more rapid consideration of the customer's problems, and also closer contact between Witco and our customers. Our former system," Mr. Minnig added, "involving nine district offices was very effective. However, due to increased activities, we have been forced to reorganize and streamline our sales operation."

The Eastern region, embracing the New England States, the majority of New York and Eastern Pennsylvania, and extending south to the Virginia-North Carolina state line, will be headed by Michael Vaccaro, whose headquarters will be in New York City. Witco's Boston sales office, under the direction of C. W. Grubb, will be retained.

The Ohio-Southern region, including the southern states, Ohio and Western Pennsylvania, will be supervised by Harry M. Brubaker, with offices in Akron, Ohio. Witco's Atlanta office will be retained under the direction of C. A. Damen.

The Mid-West region, extending from Indiana to the Rocky Mountains and south to Texas and Louisiana, will have headquarters in Chicago, under the supervision of Jerome S. Harrison. Witco's Houston office under the direction of A. B. Craig will be retained.

The West Coast region, under the direction of Stanley M. Freeman, who will continue to be located in Los Angeles, Calif., will include all states west of the Rockies. Witco's San Francisco, Calif., office under the supervision of W. J. Butler will be retained.

Harshaw Buys Pigment Division

Harshaw Chemical Co., Cleveland, Ohio, through its subsidiary, Zinsser & Co., Inc., has purchased the Pigment Color Division of United Wallpaper, Inc., and will move the manufacturing and laboratory facilities from Aurora, Ill., to the Zinsser plant at Hastings-on-Hudson, N. Y., on or about September 1. The line of organic and oxide pigment dispersions will continue to be sold under the brand name "Auraspers Colors" through the agents currently serving the domestic market. John W. Close, manager of United Wallpaper's pigment color operations, will join the Harshaw organization to manage the sale of dispersed colors and will make his headquarters at Harshaw's sales office and warehouse in Chicago. Dr. John F. Birmingham will join the Zinsser staff at Hastings-on-Hudson, where he will devote his time to research and development.

Bingham Named to New Post

F. F. Bingham

The appointment of Frederic F. Bingham to the post of sales manager of Harmon Colors, B. F. Goodrich Chemical Co., Cleveland, Ohio, was recently announced. In his new position, Mr. Bingham will direct sales operations for the company's line of color pigments and dispersions. The new sales manager will continue direct contacts in the Chicago and Detroit areas and will make his headquarters at the Harmon sales office in Haledon, N. J. Mr. Bingham joined Goodrich Chemical in 1939 and held various assignments in the company's laboratory and customer service departments. In 1949, he was transferred to Chicago as a sales representative and was appointed regional manager of that area in 1953. Mr. Bingham is a member of the National Paint, Varnish and Lacquer Association and the Chicago Rubber Group.

Becomes Pennsalt Division

Sharples Chemicals Inc. was dissolved as a corporation on July 1 and became an operating division of the Pennsylvania Salt Manufacturing Co., president William P. Drake has announced. Sharples was acquired by Pennsalt through an exchange of stock in 1951. Operating plants in Wyandotte, Mich., and Houston, Texas, it produces a wide variety of organic chemicals for the rubber, petroleum, pharmaceutical, mining, chemical, surface coating and natural gas industries. Its operations will continue without change under the direction of Lee H. Clark, general manager. Other major components of the Pennsalt organization are the Pennsylvania Salt Manufacturing Co. of Washington and the Pennsalt International Corp., wholly-owned subsidiaries; and the Industrial Chemicals, Chemical Specialties and I. P. Thomas Divisions.

Expanding Trenton Division

National Automotive Fibres, Inc., Detroit, Mich., will spend about $1,200,000 for new floor space and equipment at its Trenton Division, Trenton, N. J. Construction of 75,000 additional square feet of floor space will double the present plant area for the production of rubber and vinyl products for the automotive and apparel industries. The addition is expected to be in production early in 1956.

Monsanto and Lion to Merge

The boards of directors of the Monsanto Chemical Co. and the Lion Oil Co. have signed an agreement of merger of Lion with and into Monsanto. The agreement will be submitted for approval to stockholders of the two companies at meetings called for September 23. In a joint announcement, Monsanto's president, Charles Allen Thomas, and Lion's board chairman, T. H. Barton, stated that the basis of merger, if approved by the stockholders, will be the issuance of 1½ shares of Monsanto $2 par value common stock for each outstanding share of Lion stock. Both boards have fixed the record date of August 5 for stockholders entitled to vote at the special meetings.

T. M. Martin, president of Lion, said that more than half of Lion's investment and earnings are chemicals. "We are a large low-cost producer of nitrogenous chemicals—ammonia and its derivatives," Mr. Martin said, "which are sold in the chemical and agricultural markets. Monsanto and its associated companies are substantial consumers of ammonia. Monsanto is also a large producer of phosphorus and has developed methods of combining phosphorus with ammonia resulting in concentrated fertilizers in both solid and liquid forms. It is believed that substantial markets for these fertilizers are growing. Monsanto manufactures herbicides and other agricultural chemicals which would complement Lion's activities in this field." The identity of the Lion organization will be continued if the merger is approved and it will be known as "Lion Oil Co., a division of Monsanto Chemical Co.", headed by T. M. Martin as president of the Lion Division. T. M. Martin and T. H. Barton will become members of the Monsanto board.

National Aniline Appointments

The appointment of Cornelius C. Coakley as director of operations of the National Aniline Division, Allied Chemical & Dye Corp., New York, N. Y., and the appointment of James F. Daly to succeed Mr. Coakley as manager of the division's Buffalo, N. Y., plant, was recently announced. As director of operations, a position created by National Aniline with the current appointment, Mr. Coakley will have responsibility for the general direction of all manufacturing and related activities at the company's plants in Buffalo, Moundsville, West Va., and Hopewell and Bermuda Hundred, Va. Mr. Coakley will be located in National Aniline's offices in New York City.

Pennsalt Moves Offices

On July 1, the executive offices of the Pennsylvania Salt Manufacturing Co., and the headquarters of its operating divisions were moved from the Widener Building to new and modern quarters at Three Penn Center Plaza, Philadelphia 2, Penna. Headquarters of the Sharples Chemicals Division have also been moved to the new address. There has been no change in the telephone number, which remains: Locust 4-4700.

Completes 25 Years' Service

H. R. Thies, general manager of the Chemical Division of the Goodyear Tire & Rubber Co., Akron, Ohio, recently celebrated his completion of 25 years' service with the company. To mark the event, E. J, Thomas, president of the company, presented Mr. Thies with a long term service emblem. In the photograph herewith, Mr. Thomas (left) is presenting the long-term lapel emblem to Mr. Thies.

Mr. Thies has headed the Chemical Division since it was organized in 1948 and was named to his present post on January 1, 1954. He joined Goodyear as a rubber research compounder in 1930, and six years later was appointed assistant director of research. He became manager of Pliolite sales in 1942, and in 1945 was made manager of the Plastics and Coating Department. Born in Peck, Kansas, Mr. Thies was graduated from Phillips University in 1917 and received his M.S. degree in chemistry from the University of Chicago in 1920.

New Borden Service Laboratory

A new service laboratory, designed to give close-to-home help to Midwestern producers of water-based paints has been opened in Chicago, Ill., by the Polyco Department of the Chemical Division, Borden Co. Directed by Harry Myers, formerly with the chemical laboratories in Peabody, Mass., the Chicago installation will make possible quick handling of problems related to the use of polyvinyl acetate emulsions and butadiene-styrene latices in paints, the company states. Borden's main plant and polymer research facilities will remain at the Peabody plant. The new laboratory will also serve as a Midwestern outlet for information resulting from research at Peabody, Mass.

British Rayon Research Center

British Rayon Research Association has opened a research center at Heald Green, Wythenshawe, Manchester, England. Plans for the center had been in formation since the founding of the association in 1946, but economic difficulties and building restrictions brought on by World War II necessitated postponement. Need for a central research unit to carry out fundamental research, to probe into problems which can be tackled more economically on a cooperative basis, and to act as a pool of knowledge on which all the different sections of the rayon industry could draw, will be filled by the new center.

Crown Rubber Names Johnson

Crown Rubber Co. of Fremont, Ohio, has announced the appointment of Donald C. Johnson to the newly created position of development manager. He will be responsible for the development of formulas for both new products and new processes. The new position is an outgrowth of extensive expansion at the Crown plant, notably the completion of what is said to be the largest single foam-coating production unit in the world. This huge new unit not only has world-record capacity, it has also greatly extended the range of products that can be successfully foam-coated. Nonwoven materials, felts, very thin materials, low-strength fabrics, knitted goods—virtually anything from thin paper to heavy carpeting can be permanently bonded to foam rubber by Crown's new equipment in continuous lengths and in widths up to nine feet.

Other production units at the Crown plant have also been expanded and refined, so that the company is in a position to handle processes that were considered impossible only a few years ago. Since the company's founding, Crown has been a pioneer in new manufacturing methods and in developing new uses for its versatile product. Mr. Johnson was graduated from Gustavus Adolphus College, St. Peter, Minn., with a B.S. in chemistry, and took post-graduate work at the University of Utah. Before coming to Crown, he held positions in the Chemistry Division of the Wood Conversion Co. and the Green Giant Co.

Merger Plans Announced

Robert T. Dunlap, chairman of the board and president of Great American Industries, Inc., Meriden, Conn., and J. F. Ashman, president of Air Associates, Inc., Teterboro, N. J., have announced the signing of an agreement providing for the merger of the two companies. Great American will offer 2.57 shares of its capital stock in exchange for each share of Air Associates common. This offer will be made after Great American has adopted a charter amendment increasing its authorized capital stock. The 6%, $10 par preferred stock of Air Associates is convertible into common stock of that company share for share and is callable at $10 a share. After conversion this common would also have the right to exchange one share for 2.57 shares of Great American capital stock. Stockholders of Great American at a meeting August 17 will vote on an increase in authorized capital stock from two million to three million shares.

West German Synthetic Plant

A new plant, Bunawerke Huels Gm.b.H., devoted entirely to development and production of synthetic rubber, is being set up by four West German chemical producers, according to reports from Bonn. Of the plant's capital, Chemische Werke Huels will provide 50%. Interest of 16 2/3% each will be held by Badische Anilin und Sodafabrik, Farbenfabriken Bayer and Farbwerke Hoechst. The plant will be at Marl, near Recklinghausen in the Ruhr.

Elected Board Vice-Chairman

H. Gordon Smith

H. Gordon Smith, executive vice-president of the U. S. Rubber Co., New York, N. Y., has also been elected vice-chairman of the board and chairman of the Executive Committee. Chester J. Noonan, vice-president, has been elected a member of the Executive Committee. Mr. Smith has been with U. S. Rubber since 1917 when he joined the Planning Department of the Detroit, Mich., plant. In 1923, he was made assistant to the president on tire matters, working on problems of the purchase, manufacture and use of tire cord. In 1928, Mr. Smith was placed in charge of the company's newly-acquired textile mills and later became general manager of the Textile Division. He was elected a vice-president in 1945. In 1951, he became a director, vice-chairman of the Executive Committee and executive vice-president. Mr. Noonan joined U. S. Rubber in 1919. He was named manager of clothing and coated fabrics sales in 1938 and general sales manager of the Footwear Division in 1943. He became assistant general manager of the division in 1950 and vice-president and general manager in 1953. In 1954, Mr. Noonan was made executive general manager of the Footwear and General Products and Mechanical Goods Divisions. He was elected a director in April, 1955.

Credit Analysis Course

National Credit Office, Inc., New York, N. Y., has announced that the 1955-56 Correspondence Course in Credit Analysis for those in the chemical and rubber field will start the first of October. All secondary school graduates in the industry are eligible. The correspondence course, an outgrowth of NCO's Lecture Course of Credit Analysis which began in the 1920's, comprises 16 chapters. Examination questions, which accompany 12 of the chapters, must be mailed back every two weeks except for the Christmas season. The complete text of over 300 pages is used widely by the credit fraternity as a reference book because of its current case history illustrations. Full details are contained in a descriptive booklet obtainable from the NCO at 2 Park Ave., New York 16, N. Y.

Southern Ohio Holds Outing

About 130 members and guests of the Southern Ohio Rubber Group attended the Annual Outing held on June 4 at the Inland Activities Center in Dayton, Ohio. A full program of games and sporting events was offered. J. G. Sommer (Dayton Rubber) served as chairman of the Outing Committee. Harold Schweller (Inland Mfg.) served as associate chairman. The following members served on the committees noted: *Golf,* Marshall Mazer and Byron Nelson (National Cash Register); *Food,* John G. McCloskey, John Whiteside and Frank Ekberg (Inland Mfg.); *Beverages,* Dick Hempelman and Raymond Jacob (Premier Rubber); *Card Games,* James Hoerbelt (Dayton Rubber); *Outdoor Games,* Tom Dillard, Robert Bennet (Dayton Rubber), and Joseph Szaruga (Inland Mfg.); *Baseball,* Roy Marston (Columbian Carbon) served as manager of the "Suppliers," and Jerry Kelble (Wright-Patterson Air Force Base) served as manager of the "Industries"; *Awards,* Louis Keyes, Norman Wissinger (Dayton Rubber), James Wall (Inland Mfg.), and Richard Loges (Columbian Carbon).

The following members won prizes in the golf tournament: James Wall, Lorrin Pyle, Marvin K. Coulter, James Hoerbelt, Howard Butler, M. P. Baker, Robert Conner, E. F. Sensel, D. F. Behney, L. W. Wendell, Jr., Frank Ekberg, W. E. Simmons, A. A. Goldsmith, D. B. Tremblay, Harold Boose, W. L. Nolan, F. Puterbaugh, L. Bruce, W. Whittaker, J. W. Saettel, R. C. Hempelman, R. E. Vidal, A. M. Wrightman, J. M. Kelbe, H. C. Hamlin, and R. L. Longanecker.

The following members won awards in outdoor game contests: A. Ipiotis, V. L. Pickering, H. R. Gill, D. A. Meyer, John Russell, F. Newton, R. R. Hickernell, J. G. McCloskey, L. I. Wolk, T. Dillard, E. Moorman, R. E. Brown and J. Hoerbelt. In addition to golf and game prizes, door prizes were also awarded.

Davol Promotes Marcroft

George E. Marcroft has been elected assistant treasurer of the Davol Rubber Co., Providence, R. I. Chief accountant for the company for almost eight years, Mr. Marcroft previously was employed by Ernst & Ernst, certified public accountants. He has been an accountant for the last 20 years. A native of Rhode Island, he is a graduate of Cranston High School and Northeastern University. He is a member of the Rhode Island Society of Certified Public Accountants and of the American Institute of Accountants.

DuPont-Nopco Suit Settled

E. I. du Pont de Nemours & Co., Inc., Wilmington, Del., and the Nopco Chemical Co., Harrison, N. J., have announced the settlement of DuPont's patent infringement suit against Nopco pertaining to polyurethane foams. The suit was filed by DuPont in the United States District Court in Newark, N. J., on September 3, 1954. DuPont has now granted a license to Nopco under the patents in question.

Appointed to Export Post

Fred Thornhill

Fred Thornhill has been appointed technical manager of the Export Department of the J. M. Huber Corp., New York, N. Y. Mr. Thornhill will establish his office in Paris, as part of Huber's program for its greatly expanded overseas markets. Mr. Thornhill will offer technical assistance on the use of Huber rubber chemicals and paper clays to Huber's agents and customers in 16 nations which he will visit during the next few months. His itinerary includes Belgium, the Netherlands, Western Germany, France, Italy, Switzerland, England, Norway, Sweden, Denmark, Finland, Greece, Turkey, Israel, Spain and Portugal.

Mr. Thornhill has a broad chemical background, having 15 years' experience in research and development on both black and white rubber pigments. Formerly with Columbia Southern Chemical Corp., Akron, Ohio, a subsidiary of Pittsburgh Plate Glass Co., he has been with Huber since February. A native of Germany, he came to the United States in 1940 and became a citizen in 1943. He holds a Master of Science degree as a chemical engineer from the Munich Technical Institute. After his arrival in the United States, Mr. Thornhill worked for five years with Godfrey L. Cabot, Inc., in Boston, Mass.

Bellanca Aircraft Names Blythe

Bellanca Aircraft Co., New Castle, Del., has announced the election of Harry E. Blythe as vice-president. Mr. Blythe, who will be in charge of all manufacturing divisions, also was elected a member of the board of directors and the Executive Committee. During his career, he has served as a vice-president of the Goodyear Tire & Rubber Co. He also was general manager of the Goodyear Aircraft Corp. and vice-president of the Borg-Warner Corp. Sydney L. Albert is president of Bellanca Aircraft. Mr. Albert gained control of Bellanca Aircraft last February by trading the business and general inventory of his general partnership, L. Albert & Son of Akron, Ohio, to Bellanca Aircraft. In return he received 1,071,250 shares of Bellanca Aircraft common, or about 82% of all outstanding stock.

Financial News

U. S. Rubber Co.

Six Months to June 30: Net income of $19,005,463, which is equal to $3.09 a common share, compared with $14,442,587, or $2.23 a share, in the same period of the previous year. Net sales for the first half of 1955 amounted to $457,039,061, compared with $392,575,337 in the same period of 1954. The above income and sales figures for 1955 set a record half-year high for the company. Current assets as of June 30 were $369,588,943, compared with $350,478,605 a year ago. Current liabilities were $143,292,158, compared with $119,904,935 in the first half of 1954. Net quick assets totaled $226,296,785, compared with $230,573,670.

American Cyanamid Co.

Six Months to June 30: Consolidated net income of $18,559,000, which, after preferred dividends, is equal to $1.99 a common share, compared with $13,963,000, or $1.58 a common share, in the same period of the previous year. Net sales of the company and its wholly owned subsidiaries amounted to $225,357,000, compared with $196,083,000 in the first half of 1954.

Sheller Mfg. Corp.

Six Months to June 30: Net income of $1,925,876, which is equal to $2.02 a common share, compared with $1,455,927, or $1.53 a common share, in the first six months of 1954. Net sales for the first half of 1955 amounted to $28,369,198, compared with $18,832,352 in the first half of 1954.

Dow Chemical Co.

Year Ended May 31: Net profit of $37,414,000, which is equal to $1.64 a common share, compared with $33,425,000, or $1.42 a share, in the preceding year. Sales for the year amounted to $470,742,000, compared with $428,000,000 in the previous year.

Brown Rubber Co.

Six Months to July 2: Net income of $426,891, which is equal to $1.13 a common share, compared with $408,006, or $1.08 a common share, in the same period of the preceding year.

McNeil Machine & Engineering Co.

Six Months to June 30: Net income of $1,233,746, which is equal to $2.14 a common share, compared with $1,575,517, or $2.73 a common share, for the first half of 1954.

National Rubber Machinery

Six Months to June 30: Net income of $314,919, which is equal to $1.61 a share, compared with $430,401, or $2.20 a share, in the first half of 1954.

National Automotive Fibres, Inc.

Six Months to June 30: Net profit of $1,888,852, which is equal to $1.91 a share, compared with $512,698, or 51c a share (after deducting non-recurring loss of $371,898—equal to 37c a share), in the same period of the preceding year. Total sales for the 1955 period amounted to $45,730,135, compared with $32,960,255 in the first half of 1954.

Boston Woven Hose & Rubber Co.

Nine Months to May 31: Net income of $216,753, which, after preferred dividends, is equal to 50c a common share, compared with a net loss of $513,844, or $1.62 a common share, in the comparable period of the preceding year. Net sales for the nine months amounted to $12,157,842, compared with $11,180,750 in the nine months ended May 31, 1954.

Hewitt-Robins Inc.

Six Months to June 30: Net income of $485,271, which, after preferred dividends is equal to $1.57 a common share, compared with $398,912, or $1.33 a common share, in the same period of 1954. Net sales for the 1955 period amounted to $21,479,077, compared with $18,090,237 in the first half of 1954.

General Tire & Rubber Co.

Six Months to May 31: Net income of $4,027,153, which is equal to $2.87 a common share, compared with $3,297,747, or $2.45 a common share, in the same period of the preceding year. Net sales for the 1955 period amounted to $130,342,661, compared with $96,619,965 in the same period of 1954.

Thermoid Co.

Six Months to June 30: Net income of $703,204, which is equal to 80c a common share, compared with $473,898, or 52c a common share, in the first half of 1954. Sales for the first half of 1955 amounted to $18,036,007, compared with $16,854,359 in the same half of the preceding year.

American Hard Rubber Co.

24 Weeks to June 19: Net income of $358,179, which is equal to $1.12 a common share, compared with $226,267, or 64c a common share, in the same period of the preceding year. Net sales for the 1955 period amounted to $9,616,054, compared with $8,432,890 in the like period of 1954.

Johns-Manville Corp.

Quarter Ended June 30: Consolidated income of $6,531,742, which is equal to $2.05 a common share, compared with $5,435,663, or $1.71 in the same quarter of 1954. Sales for the quarter amounted to $75,450,847, compared with $64,815,708 a year ago.

Flintkote Company

Twenty-Eight Weeks to July 16: Net profit of $2,390,778, which, after preferred dividends, is equal to $1.71 a common share, compared with $2,176,361, or $1.58 a common share, in the like period of the preceding year. Net sales for the 1955 period amounted to $52,932,217, compared with $48,217,751 in the 1954 period.

Belden Mfg. Co.

Six Months to June 30: Net profit of $647,427, which is equal to $1.68 a common share, compared with $503,076, or $1.31 a common share, in the same period of 1954. Sales for the first half of 1955 amounted to $12,821,758, compared with $10,801,462 in the first half of 1954.

Electric Auto-Lite Co.

Six Months to June 30: Net income of $6,265,069, which is equal to $3.91 a share, compared with $776,097, or 49c a share, in the same period of 1954. Net sales for the first half of 1955 amounted to $156,364,441, compared with $96,755,282 in the previous year.

General Cable Corp.

Six Months to June 30: Net income of $2,950,114, which is equal to $1.27 each on the 2,110,332 shares outstanding, compared with a net income of $2,434,657, or $1.09 a share, on the 1,934,597 shares outstanding at the end of the comparable six-month period of the previous year.

Rome Cable Corp.

Quarter Ended June 30: Net profit of $308,000, which is equal to 74c each on the 513,112 common shares outstanding, compared with a net profit of $235,000, or 47c a share, in the June quarter of 1954 when 499,425 common shares were outstanding.

DeVilbiss Co.

Six Months to June 30: Net income of $507,807, which is equal to $1.35 a share, compared with $309,602, or 83c a share, in the same period of the preceding year. This report covers the company and its wholly owned subsidiary.

Brunswick-Balke-Collender Co.

Six Months to June 30: Net loss of $288,869, on sales of $13,427,811, contrasted with a net loss of $345,869 on sales of $12,060,607 in the six months ended June 30, 1954.

Allen Industries, Inc.

Six Months to June 30: Net profit of $910,941, which is equal to $1.63 a share, compared with $687,984, or $1.23 a share, in the same period of 1954.

Plymouth Rubber Co.

Six Months to May 28: Net income of $312,422, which is equal to 35c a share, compared with $160,097, or 18c a share, in the same period of the preceding year.

Coe Announces Retirement

John P. Coe

As briefly announced in the July, 1955, issue of RUBBER AGE, John P. "Jack" Coe, has announced his retirement as vice-president of the U. S. Rubber Co. and as chairman of the board of the Texas-U. S. Chemical Co. Born on December 15, 1889 in Rock Falls, Ill., he attended grade school in Rock Falls after which his family moved to Topeka, Kansas, where he received his high school education. He entered the University of Kansas in 1907 and after completing his freshman year transferred to Washburn College in Topeka, from which he was graduated in 1911 with an A. B. degree. For the next two years, he studied mechanical engineering at the Massachusetts Institute of Technology, receiving a B.S. degree in 1913.

Immediately after graduation, Mr. Coe went to work in the Indianapolis, Ind., plant of the U. S. Rubber Co. He was given a wide variety of duties and within a year he had worked on every operation in the plant connected with the building of tires, tubes and other rubber products. The following year he was moved to the company's general laboratories, then located in New York, and during World War I he worked in Naugatuck, Conn., and Providence, R. I., on the development of an improved gas mask for the U. S. Navy. Later, he was placed in charge of tire development, first at the general laboratories and, in 1927, at the Tire Division at Detroit. In 1931, Mr. Coe was made factory manager of the Naugatuck Chemical Co. plant in Naugatuck. In 1936, he became general sales manager of the Naugatuck Chemical Division and three years later was advanced to the position of general manager.

When the company created a Synthetic Rubber Division during World War II, Mr. Coe was made head of that division also. In December, 1945, he was elected a vice-president. In October, 1953, Mr. Coe was given the assignment to handle the company's interests in the transfer of the government-owned synthetic rubber plants to private industry. He was relieved of his duties as general manager of the Naugatuck Chemical Division. Mr. Coe was elected chairman of the board of the Texas-U. S. Chemical Co. in December, 1954. Mr. Coe is a member of many technical and fraternal organizations.

LABOR NOTES

U. S. Rubber Co. and the URW, CIO, have signed a new five-year contract covering pensions, insurance and severance pay. The contract, which covers 33,000 of the company's employees in 19 plants, went into effect on August 1 and is openable after three years. The contract includes an improved pension plan which makes employees eligible for a pension after 15 years of service instead of 20 years as formerly. The minimum pension, which had been $125 a month, including social security, is now figured at the rate of $1.80 per month for each year of service up to 30 years at age 65, exclusive of social security benefits.

Normal monthly pension payment will still be figured at the rate of 1% of the average salary for the highest 10 consecutive years of service, multiplied by total years of service. Minimum pension for disabled employees has been increased from $60 to $80, with the added provision that at 65 it will be converted to a normal pension. Group life insurance paid for by the company has been increased from $3,000 to $4,500 under the new contract. A $4,500 accidental death and dismemberment insurance policy, paid for by the company, has been added under the new contract. The new contract also provides for an improved hospital, medical and surgical insurance plan. Numerous other minor improvements in pension, severance pay, life insurance and health insurance are also covered by the new contract.

On July 24 the Seiberling Rubber Co., Barberton, Ohio, returned to a seven-day work week for the first time since the Korean conflict. An upturn in orders for passenger tires was credited for the increase in production which will mean six hours of double-time pay to 800 employees in the Passenger Car Tire Division.

What is said to be the first guaranteed annual wage provision to be incorporated in a URW contract has been signed by the Inland Manufacturing Division of the General Motors Corp., Dayton, Ohio. The guaranteed annual wage provision is patterned after that recently negotiated by General Motors and the United Auto Workers. The three-year Inland Manufacturing Division contract, besides the guaranteed wage, also includes a union shop provision and a number of fringe benefits covering some 3,600 employees.

Mohawk Rubber Co., Akron, Ohio, and the URW have signed a new one-year contract that calls for what the union describes as "a number of improvements" for the plant's 500 employees. The agreement runs until July 1, 1956. The old contract ran out on April 7 but was continued by mutual agreement while four months of negotiations continued. The general wage question was not an issue in the talks. Neither was the pension and insurance agreement.

Take a long time for this copy of RUBBER AGE to reach your desk? Use the coupon on page 787.

Carpenter Honored by ASTM

A. W. Carpenter

Arthur W. Carpenter, manager of testing laboratories for the B. F. Goodrich Co., Akron, Ohio, was honored on June 28 when he was presented with a certificate of his election to honorary membership in the American Society for Testing Materials. The presentation was made during the 58th Annual Meeting of the society at Chalfonte-Haddon Hall, Atlantic City, N. J. A native of New York, Mr. Carpenter received his B.S. in chemical engineering from the Massachusetts Institute of Technology in 1913, and his M.S. in 1914. For six years he was associated with the Goodyear Tire & Rubber Co., and since 1927 has been manager of testing laboratories for Goodrich.

An outstanding authority in the rubber field, Mr. Carpenter has served the government on loan from Goodrich in both World War II and postwar periods. He rendered valuable aid in the rubber conservation program and the utilization of synthetic rubber. Mr. Carpenter has been a member of ASTM since 1931; a member of the Executive Committee (now board of directors) 1931-33, 1941-43; vice-president, 1944-46; president, 1946-47. He has been secretary of Committee D-11 on Rubber and Rubberlike Materials since 1928. His other technical activities have included plastics, methods of testing, research, and quality control of materials. Mr. Carpenter is affiliated with a number of other technical and professional groups including the American Chemical Society, American Institute of Chemical Engineers, National Society of Professional Engineers, and the American Institute of Chemists.

Develops Log Feeding Device

Hewitt-Robins, Inc., Stamford, Conn., has developed a log feeding device for the pulp and paper industry which unscrambles logs as they are picked up from storage piles and feeds them onto a belt conveyor gently and in orderly fashion, with the result that log jams are eliminated and the life of the belt is increased. The feeder has a capacity of 50 cords an hour and will handle logs up to five feet long and 18 inches in diameter, Hewitt-Robins states.

Belt Selection Slide Rules

U. S. Rubber Co., New York, N. Y., has announced the development of two slide rules to facilitate the design of a conveyor belt installation. The slide rules are so simple they can be used by a layman, the company states. They are said to cut the time needed to design a conveyor belt installation from three hours to ten minutes. A new belt for an existing installation can be picked in just two minutes. The slide rules incorporate the engineering data contained in a 40-page conveyor belting notebook. The slide rules are a horsepower calculator and carcass, or belt fabric selector. Five settings on the horsepower calculator will give the horsepower needed for 98% of conveyor belting systems. A maximum of seven settings will yield the drives for level, incline or decline, manually-operated tripper and self-tripper systems.

The carcass selector will pick the right belt fabric for any conveyor belting system, as well as the maximum and minimum number of plies for proper troughing, and minimum pulley diameters for the entire system—take-up, drive, tripper and idler pulleys. This rule will select the correct belt fabric, once the horsepower for the system is known, in only two settings. The slide rules are part of a conveyor belt construction kit with which it is possible to make over 2,000 different sample conveyor belts. The step-back samples are replicas of actual belts designed to operate under all conditions encountered in industry. They show individual belt specifications such as top and bottom cover thickness, type of fabric and number of plies, belt widths, breaker strips, and special features. In addition, over 14,000,000 belt samples can be implied by the kit.

Wallace Retires from NBS

Everett Leland Wallace, widely-known leather chemist and Chief of the Leather Section of the National Bureau of Standards, retired on June 30, 1955, after 43 years of government service. Appointed Chief of the Leather Section of the Organic and Fibrous Materials Division in 1941, Mr. Wallace led a research group which has made many contributions to leather technology. Mr. Wallace has also been directing the Bureau's development of a rubber impregnation method for leather. Another of his developments was a fungus-proofing treatment for leather which gives it added life in tropical climates. Born in Eldorado, Kansas in 1888, Mr. Wallace received his bachelor of science degree in chemistry from the University of Denver in 1911. He entered government service with the Bureau of Mines in 1911. In 1920, he joined the staff of the heat treatment laboratory of the Washington Steel and Ordance Co. He re-entered government service with NBS in 1921. A co-author of some 30 federal specifications, Mr. Wallace is also an active participant in the American Leather Chemists Association and was formerly chairman of the Federal Specifications Committee on Leather and Leather Products. While at NBS, he taught several courses in leather technology in the NBS graduate school.

National Plastics Exposition

The Seventh National Plastics Exposition will be held on June 11 to 15, 1956, at the new Coliseum in New York City. This will be the first time in eight years that this industry-sponsored exposition, presented by the Society of the Plastics Industry, Inc., has been held in New York. The National Plastics Exposition is a trade show representing all branches of the one and one-half billion dollar plastics industry. Companies interested in the plastics industry from all over the United States will display the latest plastics end-products and their newest raw materials. They will also demonstrate the newest developments in machinery, equipment, tools, dies, molds and plastics manufacturing processes. A conference on plastics will take place at the same time as the exposition. This conference will feature talks on new markets for plastics products and informed discussions on future applications for plastics.

Sets New Safety Record

The Naugatuck, Conn., footwear plant of the U. S. Rubber Co., has established an all-time world's safety record in the rubber industry by working 10,250,040 man-hours without a lost-time accident, according to Wesley M. Graff, supervisor of safety for the company. In April, 1955, the 5,500 employees in the footwear plant broke the world's record for safety in the rubber industry by working 7,801,624 man-hours without a lost-time accident. They continued their record by working without a lost-time accident from August 26, 1954, to July 12, 1955. The new safety record of over 10,250,000 man-hours established by Naugatuck footwear plant raised the safety record of the rubber industry from twelfth to eighth place in all industry.

Air Base Tar-Rubber Paved

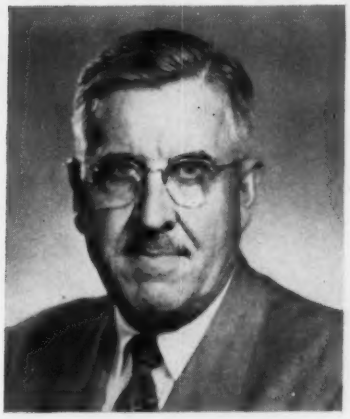
The first phase of resurfacing of the Air Force Base at West Palm Beach, Fla., has been completed marking the first application of "Jetlock," a fine-grained powder made of synthetic rubber and barytes and produced by Rubarite, Inc., Chicago, Ill. Final two phases of the project, which involved 72,000 square yards of tar-rubber paving, are expected to be completed early in August. The resurfacing was accomplished by hot mixing Jetlock with coal tar to obtain a blend which was spread over an asphaltic base. Rubberizing of the tar was accomplished rapidly because an extremely small, unvulcanized rubber particle is used in Jetlock. The new rubber powder, which provides a uniformly tight bond, is easy to handle and can be stored in any protected location, Rubarite states. Other key advantages include its ability to be stored for long periods without damage and its resistance to absorbing moisture.

New Safety Records Set

Workers employed by member companies of the National Safety Council chalked up their eighth consecutive year of record-breaking safety performance in 1954. They had fewer on-the-job accidents in 1954, and the ones they had were less serious. Industrial injury rates for last year, released by the Council in advance of the 1955 edition of its annual statistical yearbook, "Accident Facts", show a reduction in both frequency and severity of 1954 accidents as compared with 1953. In the rubber industry, for example, the accident frequency rate (disabling injuries per 1,000,000 man-hours) was 3.97, 14% less than in 1953. The severity rate (time charges in days per 1,000 man-hours) for the rubber industry in 1954 was .39.

"I was planning a surprise for your birthday!"

Shepard Retirement Announced



Dr. N. A. Shepard

Dr. Norman A. Shepard has retired from his post as chemical director of the American Cyanamid Co., New York, N. Y. During his 42-year career in the chemical industry, Dr. Shepard became widely known in industrial, governmental and agricultural circles. He began his career in 1913 as an instructor in chemistry at Yale University, became assistant professor four years later, and in 1919 joined Firestone as director of organic chemical research. In 1925, he was named director of chemical research. Dr. Shepard joined American Cyanamid in 1936 as director of technical service and was named chemical director in 1941.

During his career with American Cyanamid, Dr. Shepard served on numerous scientific and technical bodies of the government, universities and industrial associations. He is serving the Department of Defense as a member of the Materials Panel on the Office of the Assistant Secretary of Research and Development; he is director and assistant treasurer of the Council for Agricultural and Chemurgic Research, and a member of its Research Committee; a member of the Advisory Committee on Chemicals for the Director of the Bureau of Standards; a member of the Advisory Committee on Plastics of the School of Engineering, Princeton University; a member of the Engineering Manpower Commission of Engineers Joint Council; a member of the Manpower Committees of the American Chemical Society and the American Institute of Chemists; a trustee of the Dorr Foundation and chairman of the board of the Dorr Co. Educational Trust. Dr. Shepard was graduated from Yale University in 1913.

Gotham Aseptic Lab Fined

Gotham Aseptic Laboratory Co., Long Island City, N. Y., was recently fined $500 in Federal Court in Brooklyn, N. Y., for producing unsterile bandages. A similar charge against the owner of the company, Paul I. Rogers, was dropped on the motion of the prosecutor. A routine check in 1952 by agents of the Pure Food, Drug and Cosmetic Bureau resulted in the charge that the company was producing the unsterile bandages.

Ascoli Retirement Announced

F. D. Ascoli, C.I.E., F.I.R.I., has retired from the boards of Dunlop Plantations, Ltd., of which he was managing director, and Dunlop Malayan Estates, Ltd., from his position as technical adviser to the latter company, and from the board of Semtex, Ltd., of which he has been a director since its formation. Mr. Ascoli has been in charge of Dunlop Plantations, Ltd., since he retired from the Indian Civil Service in 1926. Mr. Ascoli's extensive experience in rubber and the civil service was used during World War II when he was appointed Controller of Rubber at the Ministry of Supply in 1942 and Director of Rubber in 1943-45. In 1948, he became a member of the Advisory Committee to the Commissioner for Malaya, and in 1954 a member of the Secretary of State for the Colonies Advisory Committee on Labor. He has been a member of the Council of the Rubber Growers' Association since 1927 and was its chairman in 1946. From 1930 to 1946 he was chairman of the Council of the Institution of the Rubber Industry and in 1948-49 he became president. In 1948, Mr. Ascoli was chairman of the International Rubber Conference in London.

A recognized authority on rubber statistics, Mr. Ascoli was awarded the Hancock Medal in 1954 by the Institution of the Rubber Industry for conspicuous services to the industry. Among his outstanding contributions to the rubber industry have been the introduction of latex shipments in bulk. He also introduced the centrifuging process in Malaya in 1930 and developed latex from a laboratory process up to a production capacity of over 10,000,000 gallons a year. During this period of latex development, Mr. Ascoli established a large market for Dunlop latex throughout the world, particularly in America. He also reorganized the Dunlop estates on a centralized system of control, housing and manufacture.

Cake Elected Vice-President

Dr. Wallace E. Cake has been elected vice-president, member of the board of directors and member of the Executive Committee of the U. S. Rubber Co., New York, N. Y. Dr. Cake was formerly managing director of the company's Plantation Division. Dr. Cake was born in Lake Linden, Mich., and attended the University of Michigan for both his collegiate studies and graduate work, obtaining his doctor of science degree. He joined U. S. Rubber in 1922 as a chemist in the laboratories of the Plantation Division in Sumatra. Except for periodic leaves of absence, he spent 23 years on company rubber plantations in Malaya and Sumatra, pioneering in chemical research on natural rubber and latex, finally becoming director of research for Malayan American Plantations, Ltd., and Holland-Amerikaansche Plantage, Mij., both wholly-owned subsidiaries of U. S. Rubber. During World War II, Dr. Cake was taken prisoner by the Japanese and was interned for three years in Sumatra. After his return to this country in 1945, he became assistant managing director of the Plantation Division. He was named managing director in 1945.

To Head New Research Unit

John Anderson

Shell Chemical Corp., New York, N. Y., in line with its expanding activities in the synthetic rubber field, has established a manufacturing research unit at the Torrance, Calif., plant, and named John Anderson as research director. Mr. Anderson was formerly research director at the company's Houston, Texas, laboratory. The new manufacturing research unit will conduct studies on synthetic rubber, its chemical components butadiene and styrene, and allied materials. Dr. Anderson received his A. B. degree from Georgetown College and his Ph. D. from the University of Illinois before joining Shell. After serving in various technical positions, he was made director of the Houston laboratory in 1948.

D. S. Melstrom, head of the Organic Section of the Houston laboratory, has been named to head the Chemistry Section at Torrance. F. D. Moss, supervisor of the Experimental Plants Department of the Shell Development Co., Emeryville, Calif., laboratory, will be head of the Process and Pilot Plant Section at Torrance. E. T. Bishop, of Shell Development's Organic and Applications Department, will be in charge of the Product Section at Torrance. L. R. Beason, research chemist of the Organic Section at Houston, will be group leader in the new Chemical Section at Torrance. W. L. Holmes, research technologist at Houston, will be group leader in the process and plant section. Shell Chemical also announced the transfer of V. L. Keldsen to company headquarters in New York. He will fill the newly-established position of section leader, synthetic rubber, in the Manufacturing Development Department. Mr. Keldsen was manager of the Production Department in the Ammonia Division, San Francisco, Calif.

Barry Controls Acquires Insco

Barry Controls, Inc., Watertown, Mass., has announced the acquisition of the Insco Co., Groton, Mass. Barry Controls manufactures mounts for the elimination of shock and vibration. Insco is involved in the development and manufacture of electro-mechanical instruments and controls. Barry Controls purchased the Insco organization for stock and cash.

Los Angeles News

John P. Galitza, president of Record Biscuits, Inc., 1909 North Central Avenue, El Monte, Calif., has announced the formation of the R.B.I. Rubber Division, a new subsidiary company engaged in the manufacture of natural and synthetic rubber products for the automotive, aircraft and other industries. New equipment, including a Banbury mixer, rubber mills and a battery of presses of various sizes have been installed in a plant laid out to attain maximum flexibility.

Mr. Galitza will serve as president and chief chemist of the new company. He has been associated with the rubber industry both in the East and in the Southern California area for the past twenty-one years. Others officers in the company are Frank Bellone, vice-president, and Kenneth M. Kean, secretary and treasurer. John Luksik has been named plant manager.

In addition to job work for outside customers, the R. B. I. Rubber Division has already started production on a line of automotive specialties and has established a distribution system throughout the United States. An office has been established in San Francisco to service the Bay area and to handle export orders. Similar offices are planned elsewhere about the country in the near future.

In selecting the plant site, the company allowed for future expansion as well as for the construction of an office building sufficiently large to house the general and executive offices. The present offices are so designed that they can readily be converted into a quality control laboratory.

J. D. "Bud" Campbell, formerly associated with the Los Angeles plant of the Goodyear Tire & Rubber Co., has been assigned as plant manager of the Goodyear plant in Peru.

Jim Morrison, well-known rubber chemist in the Los Angeles area, has joined the Kirkhill Rubber Co. as chemist.

John Ryan, formerly chief chemist at the Los Angeles plant of the Goodyear Tire & Rubber Co., has joined the Synthetic Rubber Division of the Shell Chemical Corp. After an intense program of study and research at the Emeryville, Calif., laboratories of the company, he will be stationed at the Torrance, Calif., plant, in the Technical Sales Department.

Tom Squire, formerly chief chemist at the Franklin C. Wolfe Co., has moved to Portland, Ore., and joined the Griffith Rubber Mills of that city.

Phil Courtney of the B. F. Goodrich Chemical Co., is presently in Cleveland, Ohio, at company headquarters, where he is taking a refresher course in Hycar.

Charles Lindsay, general manager of the Western Container Division of the Stauffer Chemical Co., has moved into new offices at the plant site, 3211 East 26th St., Los Angeles 23. It is understood that the offices in downtown Los Angeles will be closed as soon as additional facilities are constructed at the plant. Fred Reiter has been transferred from the laboratory to the Engineering Department, where he will work with P. L. Burdick in Engineering and Customer Service. R. H. Rector has taken over sales and engineering.

The new mechanical rubber goods plant of the Mansfield Tire & Rubber Co. is now in production at its location in Capistrano Beach, Calif. The plant is of modern tilt-up construction and has a total area of 12,800 square feet. About 1,600 square feet of this is devoted to office and laboratory. Space is available at the site for another unit of equal size, plus additional area for a Banbury building.

The principal item of manufacture at present is brake chamber diaphragms, which were developed and are being used as original equipment by one of the major brake manufacturers. Other rubber molded items for automotive and aircraft application will be added as personnel is trained.

In addition to molded goods, the company has signed a contract with a major user of sponge under-carpet padding. A new conveyorized gas fired sponge oven has been installed. The requirements of this customer will take the entire capacity of the oven. Production on this item is now getting under way. W. E. Faulk, general manager of the Mechanical Rubber Goods Division, is now resident at the plant, as is J. O. Prohaska, chief chemist.

The plant of the newly-formed R.B.I. Rubber Division is shown above.

Rojas Elected Vice-President

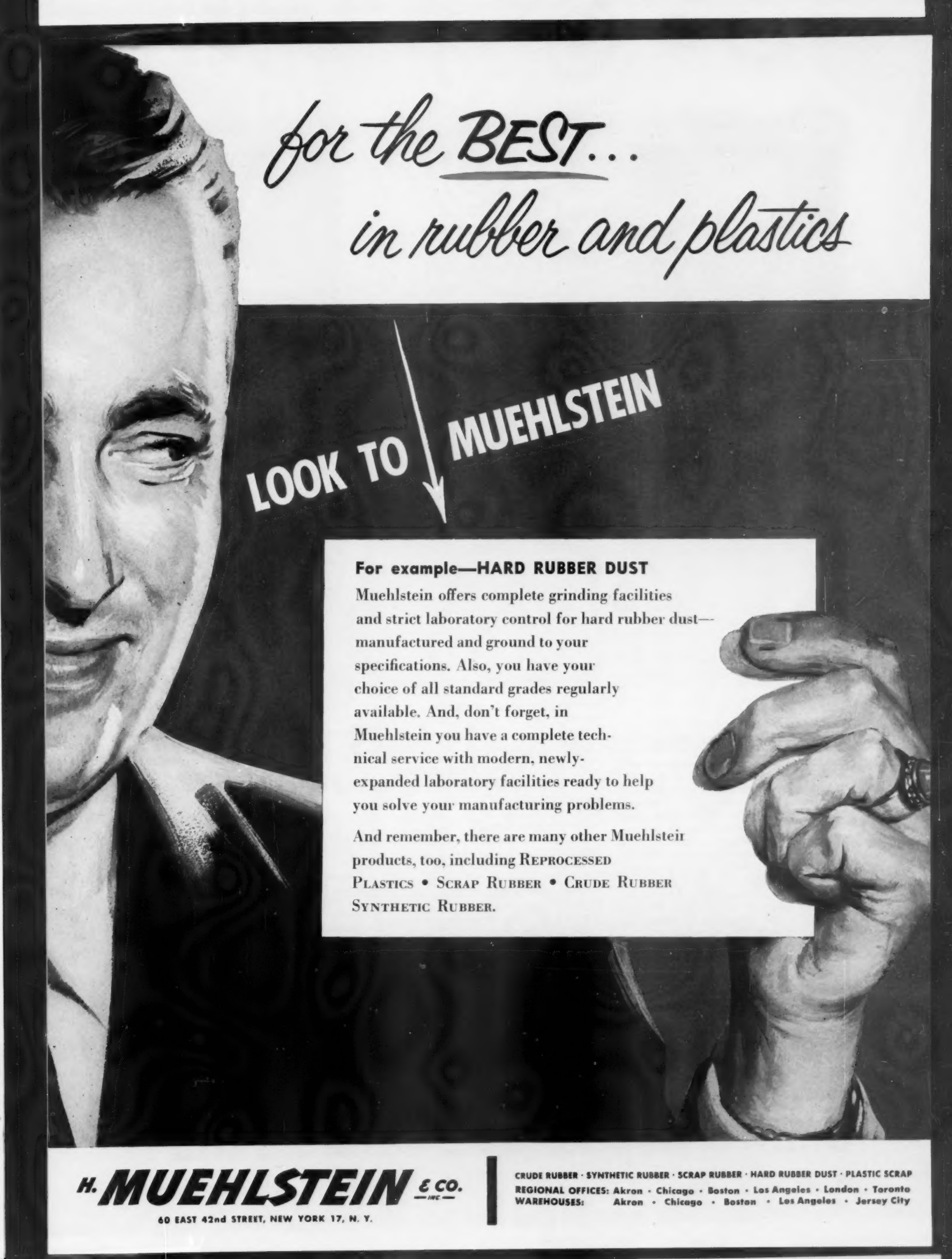
Henry W. Rojas

Appointment of Henry W. Rojas as vice-president of export marketing has been announced by Max A. Minnig, executive vice-president of the Witco Chemical Co., New York, N. Y. Mr. Rojas, a specialist in export chemical sales, will be responsible for all present international operations of Witco Chemical. In addition, it is expected that with his wide experience in this field, Mr. Rojas will increase Witco's activities in the export market by developing new outlets for the company's manufactured chemicals and carbon blacks. His headquarters will be in New York. Mr. Rojas joins Witco after 28 years of worldwide chemical experience. For the past 21 years he has been with the American Cyanamid Co., most of the time as export manager of the Industrial Chemical Division and manager of the Dyes and Chemicals Department of the Cyanamid Interamerican Corp. He has travelled widely in Central and South America and Europe. He has been a member of the Export Managers Club of New York for over 10 years.

Establishment of new headquarters in Los Angeles for the Western Division of Witco Chemical Co. was announced recently by S. M. Freeman, vice-president of the division. The new offices, located at 3460 Wilshire Boulevard, are at a convenient point between the downtown area and Witco's newest plant for the production of stearates and driers. The location was chosen to implement both customer convenience when visiting the offices and office-plant traffic and communication factors vital to efficient order handling.

Argus Chemical Corp., Brooklyn, N. Y., manufacturers of plastics stabilizers and plasticizers, has announced the appointment of H. M. Royal, Inc., of Los Angeles, as sales representative for the states of California, Utah and Oregon.

Lewis C. Paper, formerly national sales promotion manager on new items for the Industrial Products Division of the Goodyear Tire & Rubber Co., has joined the American Latex Products Corp., Hawthorne, Calif., as sales manager.


for the BEST...
in rubber and plastics
LOOK TO MUEHLSTEIN
For example—HARD RUBBER DUST
Muehlstein offers complete grinding facilities and strict laboratory control for hard rubber dust—manufactured and ground to your specifications. Also, you have your choice of all standard grades regularly available. And, don't forget, in Muehlstein you have a complete technical service with modern, newly-expanded laboratory facilities ready to help you solve your manufacturing problems.
And remember, there are many other Muehlstein products, too, including REPROCESSED PLASTICS • SCRAP RUBBER • CRUDE RUBBER SYNTHETIC RUBBER.
H. MUEHLSTEIN & CO. INC
60 EAST 42nd STREET, NEW YORK 17, N. Y.
CRUDE RUBBER · SYNTHETIC RUBBER · SCRAP RUBBER · HARD RUBBER DUST · PLASTIC SCRAP
REGIONAL OFFICES: Akron · Chicago · Boston · Los Angeles · London · Toronto
WAREHOUSES: Akron · Chicago · Boston · Los Angeles · Jersey City

U. S. Rubber Promotes Reid

Herbert J. Reid

Appointment of Herbert J. Reid as assistant general manager of the Mechanical Goods Division, U. S. Rubber Co., New York, N. Y., was announced on July 13. Mr. Reid was formerly factory manager of the division's Fort Wayne, Ind., plant. Homer O. McCracken, assistant factory manager, has been named to succeed Mr. Reid. In his new post, Mr. Reid will have responsibility for supervising production and research as well as sales operations in the Mechanical Goods Division. He will make his headquarters in New York. The division operates plants in Passaic, N. J.; Fort Wayne, Ind.; Philadelphia, Penna.; Bristol, R. I., and Sandy Hook, Conn. It manufactures hose, conveyor belts, transmission belts, V-belts, packing, tape, automotive rubber products, insulated wire and cable, plastic pipe, grinding wheels and hundreds of other industrial products.

Mr. Reid began his career with U. S. Rubber as a laboratory assistant in 1931. In 1939, after four years as a development chemist, he became associated with the Mechanical Goods Division as a development group leader. He occupied posts as technical superintendent, then general superintendent of the Philadelphia plant before he was made assistant to the production manager of mechanical goods in 1953. He was named assistant factory manager at Fort Wayne soon thereafter, and manager, last year. Mr. Reid is a native of New Jersey, where he attended Newark College of Engineering. He is a member of the American Chemical Society and is active in civic work.

J-M Changes Division Name

The name of the Van Cleef Division, Johns-Manville Corp., New York, N. Y., has been changed to the Dutch Brand Division to further identify "Dutch Brand" products with Johns-Manville's national promotional programs. The Dutch Brand Division of Johns-Manville is an internationally known manufacturer of industrial and automotive products. The division, which operates a large plant and general offices in Chicago, Ill., employing more than 350 people, was acquired by Johns-Manville in 1947 from the Van Cleef interests.

FINANCIAL BRIEFS

Goodyear has priced the stock in its 912,512 share ($45,600,000) common stockholder subscription offer at $50 per share. Holders of record July 21 will get rights to subscribe on the basis of one new share for each ten held. Dillon, Read & Co., Inc., and associates were to take up any unsubscribed shares following the offering period August 8. The firm plans to use the proceeds for capital expenditures and working capital.

John O'Neill, director of the General Tire & Rubber Co., recently purchased 1,300 common shares, increasing direct holdings to 32,995 shares.

Pittsburgh Coke & Chemical Co. has called a special meeting of shareholders for September 2 to vote on a proposal to increase common stock authorization to 2,400,000 shares from the present 1,200,000 shares. They also will be asked to increase the authorized amount of serial preferred stock from 117,310 shares to 240,000 shares. All the company's capital stock is without par value.

At a meeting held on July 28, the board of directors of the National Rubber Machinery Co. increased the regular quarterly dividend on the common stock of the company to 35c from 30c per share and declared a quarterly dividend of 35c per share on this stock payable on September 15, 1955, to shareholders of record at the close of business September 1.

R. S. Wilson, vice-president of Goodyear, has sold 5,000 common shares and made a gift of 50 shares, decreasing direct holdings to 1,608 shares. J. M. Linforth, vice-president, has bought 2,000 shares on stock option, increasing direct holdings to 8,702 shares.

Rubber Division Meeting Plans

A. M. Neal, secretary of the Division of Rubber Chemistry, American Chemical Society, has announced that September 12 has been established as the deadline for the submission of abstracts of papers to be presented at the forthcoming meeting of the division in Philadelphia, Penna. Abstracts should be submitted to the secretary in triplicate and should be about 200 words in length. All division members who have papers which may be of interest for presentation at the meeting, scheduled for November 2 to 4, are urged to submit abstracts to the secretary. Mr. Neal may be addressed at E. I. du Pont de Nemours & Co., Inc., P. O. Box 406, Wilmington, Del.

Merix Renames Stabilizer

Merix Chemical Co., New York, N. Y., which recently introduced a new stabilizer designed to prevent ultra-violet light caused darkening or color changes and to remove static electricity from all types of plastics, has renamed the product "Merix AST Concentrate 1001." The previous name of "Stabilite" was changed to avoid confusion with other, existing products.

Named to Technical Sales

John R. Davis

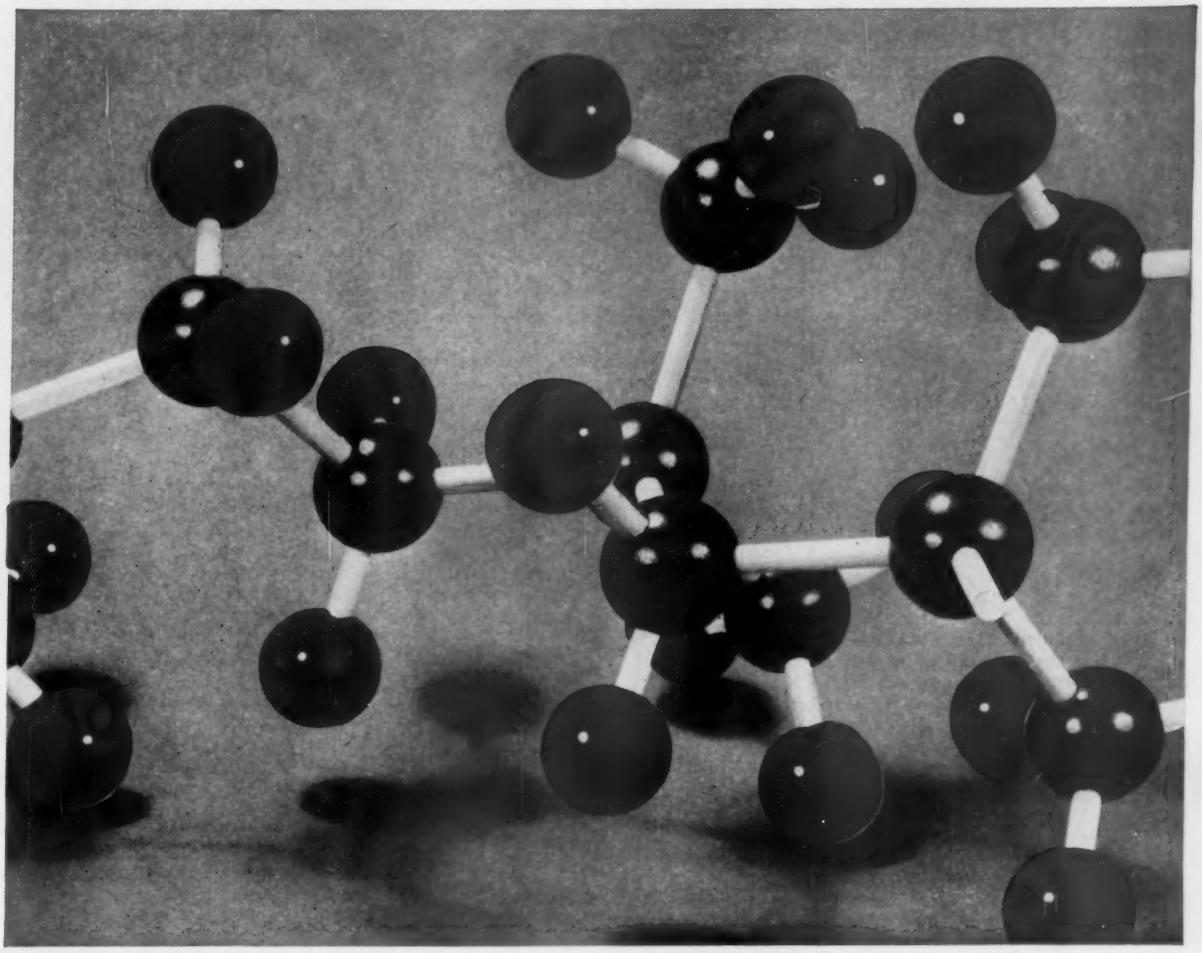
John R. Davis, formerly administrative assistant in the Elastomers Division of E. I. du Pont de Nemours & Co., Inc., has been named technical sales representative assigned to the division's Akron, Ohio, district sales office. Mr. Davis has been with DuPont since early 1953, when he became a chemist at the Rubber Laboratory in Deepwater Point, N. J. He was transferred to Wilmington, Del., as sales correspondent and administrative assistant in January of this year. A native of Altoona, Penna., Mr. Davis received his B. S. degree in chemical engineering from Pennsylvania State College in 1948. During and after the war, he served with the Army Signal Corps in Labrador, Greenland, and Iceland. While at Penn State, he was employed for a time by the United States Steel Co. as an analytical chemist. Following graduation and until he joined DuPont in 1953, Mr. Davis was a tire compounder for the Firestone Tire & Rubber Co. in Akron, Ohio, meanwhile continuing his graduate studies at the Case Institute of Technology.

DuPont Facts About Hypalon

Elastomers Division, E. I. du Pont de Nemours & Co., Inc., Wilmington, Del., has announced a new publication for maintenance, operating, and design engineers which it will issue periodically. Entitled "Facts About Hypalon", the first issue briefly describes Hypalon chemical rubber, and details some of the outstanding attributes of this versatile new elastomer. It also includes a case history account of how a new type of acid hose featuring a tube of Hypalon has already outlasted regular acid hose by four times in chromic acid service and is still going strong.

Dacar Chemical Products Co., McCartney at Wabash St., Pittsburgh 20, Penna., has issued a new 4-page bulletin on "Dacarol" fuel oil treatment.

Adhesive Products Corp., New York, N. Y., has announced the development of "Splicegrip", a fast setting flexible adhesive for splicing ends of yarns.



Enjay Butyl—*greatest rubber value for electrical application*

Enjay Butyl, an amazingly versatile rubber, has opened a whole new field of electrical application. It has proven itself ideal in such varied uses as high voltage cable insulation, casing and insulation for indoor-outdoor transformers, and insulation for underground service cables. The reasons: its long life, low power factor and dielectric properties, stability to temperature change and resistance to heat and aging combined with its outstanding resistance to ozone and corona, superior low-temperature flexibility, and resistance to moisture absorption and abrasion.

● Check these three *outstanding* features of Enjay Butyl: *excellent electrical properties*, a *definite price advantage*, and *immediate availability*.

● Enjay Butyl may have a place in *your* operation. It can cut costs, increase the performance of your product. It will pay you to get all the information on this low-cost rubber. The complete laboratory facilities and skilled technical assistants of the Enjay Company are at your service. Contact them today.

ENJAY BUTYL

Enjay Butyl is the super-durable rubber with outstanding resistance to aging • abrasion tear • chipping • cracking ozone and corona • chemicals gases • heat • cold • sunlight moisture.

ENJAY **ENJAY COMPANY INC., 15 West 51st Street, New York 19, N. Y.**
District Office: 11 South Portage Path, Akron 3, Ohio.

35 SUCCESSFUL YEARS OF LEADERSHIP IN SERVING INDUSTRY

Canadian News

Goodyear Tire & Rubber Co. has announced increases ranging from 2½ to 7½% on tires and up to 10% on tubes, effective immediately. Seiberling Rubber Co. followed and Dunlop of Canada indicated similar action "within a few days." It was expected that other Canadian rubber firms would follow suit. On practically all popular sizes of automobile tires, the Goodyear increase is 5%.

The lowest increase is 2½% on farm implement and tractor tires, with a 7½% rise for truck and industrial tires in the larger 750 cross-section sizes. At the same time, the company raised its prices on synthetic tubes by 5% and crude rubber inner tubes by 10%.

Canadian rubber industry spokesmen noted that the cost of crude rubber has risen from 24 to 42c a pound within the past year, with a 10c increase within recent weeks.

Justice Minister Garson said recently that the government's anti-combine officials are carefully investigating what a CCF member described as a surprisingly uniform increase in the price of tires and tubes by three Ontario rubber companies. Replying to a question asked in the Commons, Justice Garson said that "in accordance with the usual practice, the combines branch is keeping the tire market under observation."

A new policy in the Canadian marketing of polyester resins has been announced by Naugatuck Chemicals, manufacturers of Vibrin polyester resin at Elmire, Ont. Under this policy, Naugatuck will supply resins fully formulated for particular uses, where volume requirement is sufficiently large.

The fully formulated Vibrins will generally include promoters, thixotropic agents, and pigments, as desired, which will be incorporated into either a straight resin or a blend of two or more Vibrin types.

Production of "Vibrin F-1," a new polyester resin type, has been started by the company. Especially developed for boat building and boat covering operations, Vibrin F-1 is the first fully formulated resin of its kind to be offered to Canadian users.

Roger E. Hatch, general sales manager of the Polymer Corp., Ltd., Sarnia, Ont., has announced that Sidney C. Kilbank has assumed his new duties as European technical representative for the company. His headquarters are located in London, England. Mr. Kilbank has been a technical representative for Polymer during the past five years and is well known by agents and customers both in Canada and abroad. Returning to Sarnia to assume new responsibilities is James T. "Terry" Fitzgerald. During the past six years Mr. Fitzgerald has served as Polymer representative in Europe and has been associated with the company since 1948.

H. J. Ross, president of United Rubber, Ltd., has announced the appointment of A. E. Ruthven as manager of the G P Footwear Division. Mr. Ruthven has been active in the rubber footwear field for a number of years, most recently as assistant manager, footwear division, Gutta Percha and Rubber, Ltd., and since January 1, 1955, has been associated with head office sales, G P Footwear Division of United Rubber.

Dominion Rubber Co. of Montreal is erecting a $2,125,000 foam latex rubber plant at Kitchener, the firm announced. The plant, covering 66,000 square feet, will boost Dominion's plant and equipment investment 5% and represents the firm's first venture into foam latex products. Expected to be completed by June, 1956, the plant will employ about 125 persons.

Drastic tariff action by the federal government of Canada was urged recently by a delegation of rubber footwear manufacturers who met with the Canadian Minister of Finance. They said the rubber footwear industry and its 5,000 employees are in danger of being wiped out unless the government takes steps to protect the domestic market. The group asked the government to fix the value of imported shoes in relation to Canadian costs or alternatively to put import quotas on canvas and waterproof footwear.

Neither of these steps would be usual Canadian government policy. Canada has been protesting against such steps taken by other countries as violations of GATT. The delegation said that half the cost of making a rubber shoe arises from labor costs. In Hong Kong, the hourly wage rate is 6c; in Britain, 64c, and in Canada $1.45.

Imports of rubber-soled shoes have risen from 2,000 pairs in 1949 to more than 1,000,000 pairs last year. A number of these firms pleaded guilty in 1954 to charges of violating the Canadian combines law (similar to the Sherman Anti-Trust Act in the U. S.) involving among other things, price-fixing for rubber-bottomed canvas shoes.

"The Canadian rubber footwear industry will be wiped out and 5,000 rubber footwear workers will be unemployed in less than two years if imported shoes continue to flood the country at the present increasing rate," said Ira G. Needles, president of B. F. Goodrich and spokesman for the industry delegation.

Other company executives appearing before the minister were C. C. Thackray, president of Dominion Rubber; A. R. Kaufman, president of Kaufman Rubber; John W. H. Miner, general manager of Miner Rubber, and Grieg B. Smith, manager of the Rubber Association of Canada. The group urged that the government fix the value of imported shoes in relation to Canadian costs, or as an alternative, place quotas on imports of canvas and waterproof footwear.

A $3,000,000 expansion program to increase production of ethylene by 70% is planned by Dow Chemical of Canada, Ltd., LeRoy D. Smithers, executive vice-president, announced recently. Construction contracts are expected to be let by the end of the year. The project is slated for completion by mid-1956.

S. C. Kilbank

J. T. Fitzgerald

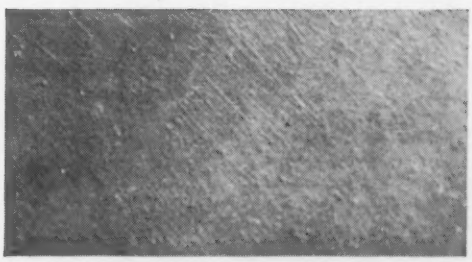
Corrocote Neoprene Coating

"Corrocote 362", a neoprene-base protective coating that guards surfaces of many materials against moisture, oils, chemical fumes and splash, salt air and fungus corrosion, has been developed by the Chemical Coatings and Engineering Co., Broomall, Penna. Applied by roller, brush, spray or dip, the film dries quickly and self-vulcanizes to form a firm rubbery barrier. The cured film resists abrasion, will not support combustion, resists sunlight and weather, is a non-conductor, and effectively counteracts electrolytic corrosion. It has good adhesion to metal, concrete, wood and fabric. Coatings can be exposed to continuous air temperatures up to 250°F. and intermittently to 300°F. Films of 0.003 to 0.005-inch thick can be applied per coat, effectively covering sharp edges, welds and corners.

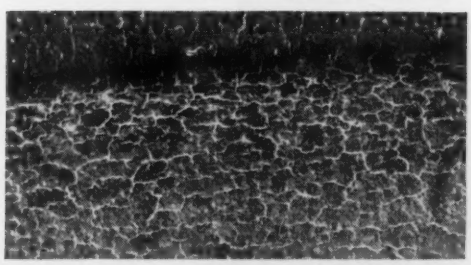
No sign of checking. The rubber insulation on this wire contains Sunoco Anti-Chek. Compare it with the sample at the right.

Surface checking is clearly evident in the rubber covering of this wire—which does not contain Sunoco Anti-Chek.

STOP SURFACE CHECKING AND CRACKING WITH SUNOCO ANTI-CHEK



Sunoco Anti-Chek keeps black sidewalls smooth... even after prolonged storage.



Notice the cracking and checking of the sidewall on this tire which does not contain Sunoco Anti-Chek.

Sunoco Anti-Chek is unique . . . there's no other anti-checking wax like it. It's a narrow-cut primary product, not a blend. It is completely controlled from crude oil to finished product by the same company that originally developed it. And it is made in the most flexible wax plant in the world. To you this means a completely uniform product that can be depended on for the same excellent results tomorrow, next year, 10 years from now!

Detailed information on the many advantages of Sunoco Anti-Chek is given in a new technical bulletin. To get a copy, call your Sun Oil Company representative or write Dept. RA-8.

INDUSTRIAL PRODUCTS DEPARTMENT

SUN OIL COMPANY

SUNOCO®

PHILADELPHIA 3, PA. • SUN OIL COMPANY LTD., TORONTO & MONTREAL

Refiners of famous High-Test Blue Sunoco Gasoline

Obituaries

Isador Chesler

Isador Chesler, director of research and development for the Eagle Pencil Co., New York, N. Y., died on July 21. He was 69 years old. Mr. Chesler had been with Eagle Pencil since 1920. He was credited with many of the basic improvements introduced in the production of lead pencils over the last 35 years. Earlier, he had worked as a research engineer in experimental work, notably with Thomas A. Edison. While associated with Mr. Edison from 1910 to 1914, he carried out a number of projects, including the development of the Edison Electric Storage Battery. In 1917, Mr. Chesler again worked with Mr. Edison on naval experiments for the government.

Born in Russia, Mr. Chesler studied at Cooper Union Technical School, specializing in electrical engineering. His first professional connections were as superintendent of the Spiro Co., electrical apparatus manufacturers, and in charge of the experimental shop for the Continental Engineering Co. From 1914 to 1916, Mr. Chesler worked for the L. E. Myers Co. of Chicago, Ill., supervising the installation of mechanical and electrical devices used in a model of the Panama Canal shown at the Panama Pacific International Exposition in San Francisco. This work won him the gold medal of the Exposition's International Jury of Awards. Mr. Chesler held a number of patents in connection with his work for Eagle Pencil. He was a member of the American Society of Mechanical Engineers, the American Society of Chemical Engineers, the Ceramics Society and the Army Ordnance Association. Mr. Chesler is survived by his wife, daughter and a son.

George S. Haslam

George S. Haslam, chief of products application in the Research Department of the New Jersey Zinc Co. of Palmerton, Penna., died of a heart attack on July 5. He had been with the company for 31 years. Mr. Haslam's field of research comprised the physical and chemical properties of zinc pigments, and particularly their utilization in rubber, paint and other applications. He was active in American Legion affairs, and at one time served as Commander of the Mader-Gaydos Post in Palmerton. He is survived by his wife and one son.

James J. McDonough, Jr.

James J. McDonough, Jr., a chemical engineer at the General Tire & Rubber Co. Akron, Ohio, died suddenly on July 11 of an apparent heart attack. He was 36 years old. Mr. McDonough was born in Pittsburgh, Penna., and had lived in Silver Lake, Ohio, for the past 12 years. He was a member of the American Institute of Chemical Engineers and Phi Kappa fraternity. Services were held on July 14 in Akron. Surviving are his wife, a son, and two daughters.

Joseph H. Rockett

Joseph H. Rockett, assistant sales manager of Sinclair Chemicals, Inc., New York, N. Y., a subsidiary of Sinclair Oil Corp., died suddenly on June 29 at his home in New York City. He was 47 years old. Mr. Rockett was born in Marblehead, Mass., and was graduated from Burdett College in Lynn, Mass. He joined the Sinclair Refining Co. in New York in May, 1927, and in 1932 was employed by Wolverine Oil Co. in Brockton, Mass., where he worked for ten years in a sales capacity. Mr. Rockett served for three years as a Chief Specialist in Navy Intelligence. In 1946, he joined the Domestic Lube Sales Department of Sinclair in New York and in 1951 joined the Petroleum Chemical Sales Division of Sinclair Refining Co. He was appointed assistant sales manager of Sinclair Chemicals, Inc., when it was formed in 1952.

Harold R. Brandt

Harold Rayburger Brandt, a project engineer in the International Division of the B. F. Goodrich Co., Akron, Ohio, died on June 28, after a long illness. He was 62 years old. Mr. Brandt had been with Goodrich for 35 years. Born in Kitchener, Ont., he was graduated from the University of Toronto with a master's degree in chemistry. His first job was with the Ames Holden Tire Co. of Kitchener which merged with Goodrich in 1919. Mr. Brandt became technical adviser of the Canadian plant and remained in Kitchener until 1928, when he was transferred to the company's plant in Los Angeles, Calif., as manager of the Construction and Design Department. He went to Akron in 1942 to join the Production Control Department of the Goodrich Tire Division. Since 1950, he had held his position as project engineer. Mr. Brandt is survived by his wife, two sons and a daughter.

Purchases Paramount Rubber

Willson Products, Inc., of Reading, Penna., has announced the purchase of the assets of the Paramount Plastics Co. and the Paramount Rubber Co., both of Detroit, Mich. Thomas A. Willson, chairman of the Willson board of directors, said the Detroit firms will function as the Paramount Plastic Division of Willson Products and will remain in Detroit. Willson manufactures industrial safety equipment. Paramount Plastics and Paramount Rubber make industrial safety hats and various rubber products used principally by the automotive industry. The Reading company is a subsidiary of Ray-O-Vac, Inc., of Racine, Wisc.

Four Goodrich 6-ply trailer tires, present at the May 5 Yucca Flat atom test, survived the shock and heat without a mark or visible sign of damage.

Join Enjay Laboratories

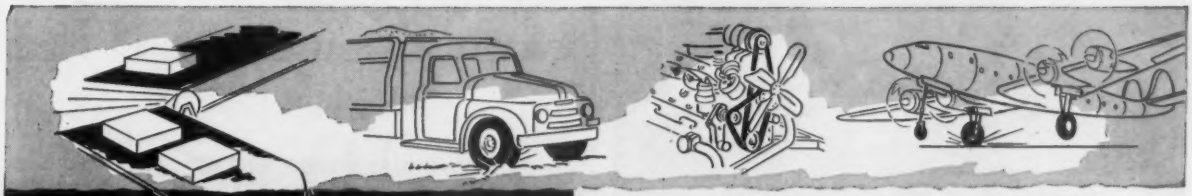
Esso Research and Engineering Co., Linden, N. J., has announced the appointment of Erving Arundale and Elfried F. H. Pennekamp as assistant directors of the Enjay Laboratories Division. This new division was established last year to provide technical service support for the chemical marketing operations of the Standard Oil Co. (N.J.) and its affiliates. Its operations will be carried on in the new laboratory which was dedicated in May and in a second unit which will be completed later this year at the Esso Research Center. Mr. Pennekamp, who heads up chemical additives work in the Enjay Laboratories, joined the company in 1943 after graduating from the University of Tennessee. During his career, he has specialized in automotive and aviation fuels and lubricants and synthetic products. He helped to organize the new Enjay Laboratories at the time of its establishment last year. He is active in the Society of Automotive Engineers and has served on committees of the Coordinating Research Council and Armed Services-Industry Committees. Mr. Arundale, who heads up chemicals and rubber activities in the Enjay Laboratories, joined the company in 1937 after graduating from Worcester Polytechnic Institute. He has specialized in new organic chemicals and in synthetic rubber, and during World War II was a member of the government's Rubber Reserve Polymer Research Committee. He is a councilor of the American Institute of Chemists and participates in other professional societies.

Shoe Plant Sets Record

Wellco-Ro-Search, Waynesville, N. C., has announced that one of its oldest affiliated factories has set what is believed to be a new world record for market coverage by a single footwear manufacturing firm. This firm is Hamgaper Ltd. in Haifa, Israel. Its production in 1954 was sufficient to supply footwear to one-third of that nation. In a country with only 1,500,000 persons, Hamgaper manufactured and sold over 500,000 pairs. Although other shoe manufacturing firms in other countries outproduce Hamgaper on a total volume of production, none has succeeded in capturing that large a portion of their national markets. Established in 1936, Hamgaper is the oldest shoe factory in Israel. Their beginning was quite modest, their total daily production being only several pairs per day. They now manufacture waterproof footwear, vulcanized sponge-rubber footwear of all types, leather shoes, tennis shoes, and are now planning to introduce several new types of construction pioneered by Wellco-Ro-Search.

Synthetic Plant for India

Reports from Bombay state that the Indian government will soon sanction construction of a $630,000 plant to produce synthetic rubber from the waste products of the Stanvac and Burmah Shell refineries on Trombay Island. It is estimated that in its initial production stages the contemplated plant will turn out 15,000 tons of synthetic rubber a year.



Rubber-fiber bonds that will take PUNISHMENT are made with Resorcinol Resins

● Koppers resorcinol-formaldehyde resins form a lasting bond between synthetic reinforcing cords and rubber—a bond that will take constant pounding and wear, will withstand prolonged flexure in service, without separating.

Because of their remarkable adhesive properties, Koppers resorcinol-based resins are widely used in the manufacture of tires, industrial belting, and many other heavy-duty rubber products where a strong, permanent bond is needed between reinforcing fibers and the synthetic or natural rubber.

Especially in the manufacture of tires for airplanes and trucks is the use of resorcinol practically mandatory. Such heavy stress tires generally require nylon or rayon cord for their construction, and resorcinol forms an excellent bond between the smooth synthetic fiber filaments and rubber.

Investigate the various uses of Resorcinol in rubber. It's to your advantage. For further information, write to:

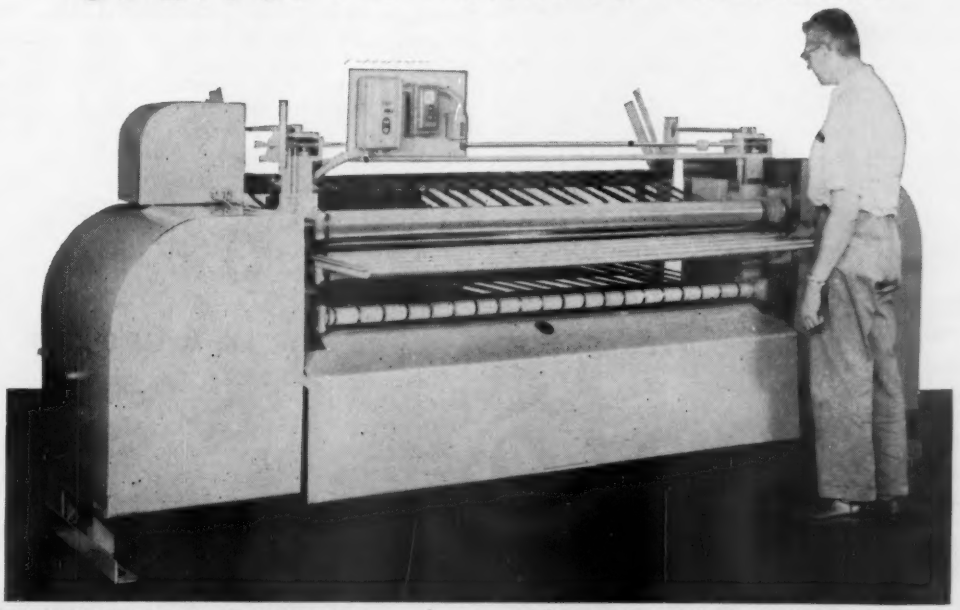
KOPPERS COMPANY, INC.
Chemical Division, Dept. RA-85, Pittsburgh 19, Pennsylvania

Resorcinol is only one of the many synthetic chemicals produced by Koppers. Other include Styrene Monomer, Polystyrene, Phthalic Anhydride, Divinylbenzene, and Di-tert-butyl-para-cresol.

KOPPERS ® **Koppers Chemicals**

SALES OFFICES: NEW YORK · BOSTON · PHILADELPHIA
ATLANTA · CHICAGO · DETROIT · HOUSTON · LOS ANGELES

SPLITS: FOAM RUBBER — SPONGE RUBBER AND SIMILAR SOFT MATERIALS



UNIVERSAL SPLITTER— A new and improved model of this field-tested splitter offers real savings in the splitting of any soft material. You can reduce your inventory of varied thicknesses—offer better delivery, etc. Has design and construction features that combine dependability in operation and uniformity in results. Let us help you with your engineering problems—write!

CASE-MAUL MANUFACTURING CO. 22 Harker St., Mansfield, Ohio

Why is this wire wiser?

Wiser and better because of a special rubber covering compound employing a **PANAREZ** hydrocarbon resin.

In GRS electrical wire covering applications, **PANAREZ** resins produce stocks which are economical, smooth, glossy, easy processing and fast extruding. They provide excellent color and color stability. They have low specific gravity. They enhance such properties as tensile strength, elongation, tear resistance, abrasion resistance, electrical characteristics and aging qualities.

Applied in many ways in the compounding of synthetic rubbers, **PANAREZ** resins are helping produce better products, *and at the same time effect decided economies.*

Whether your business has to do with wire, shoe soles, belting, floor tile, hose, insulators or other products, we welcome the opportunity to work confidentially with you on your particular problem. For full information write or wire Dept. RA

HYDROCARBON PANAREZ RESINS

PAN AMERICAN CHEMICALS

PAN AMERICAN CHEMICALS CORP

555 FIFTH AVENUE, NEW YORK 17, N.Y.

PANAREZ Hydrocarbon resins

PANAPOL Hydrocarbon drying oils

PANASOL Aromatic solvents

New Goods

Air-Porous Koroseal

The Industrial Products Division of the B. F. Goodrich Co., Akron, Ohio, has announced a new Koroseal upholstery material composed of microscopic, inter-connecting cells that literally air condition the plastic material. Known as "Air-Porous Koroseal," the new upholstery has more than 50,000 inter-connecting cells to the square inch, feels cool and fresh in summer heat, and

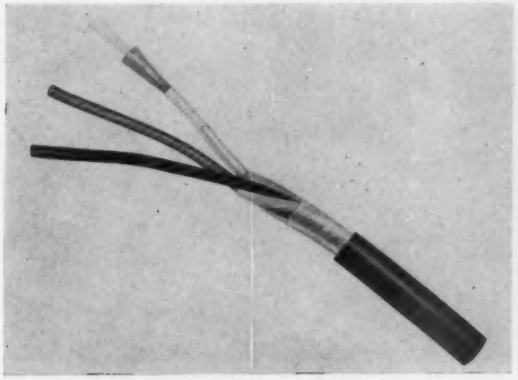
yet remains comfortable and pliable at winter temperatures, according to the company. The air-filled cellular structure of the new material permits evaporation of moisture—thus providing more comfortable seating. Because its surface is unperforated and continuous, the material is water-repellent. Easy to clean with soap and water, Air-Porous Koroseal will be available in a variety of patterns and colors to simulate leather-like grains or fabric impressions. It can be applied to any type of fabric backing material including knit backs, sateen backs, broken twills and lightweight fabrics such as drills and sheetings. Soft and workable, it readily conforms to furniture contours.

General Raykin Fender Buffer

General Tire & Rubber Co., Akron, Ohio, has developed a device that takes the crash out of waterfront docking operations. Described by the company as a practical means of smothering shock and shear forces, the "General Raykin Fender Buffer" is said to be 250% more efficient than conventional buffers. The buffer utilizes a series of rubber sandwiches, three inches thick and fifteen inches square, bonded between half-inch steel plates. The cushions are mounted in a "V" with the apex supporting walings or pilings. Under compression, the cushions soak up the crushing forces that normally snap pilings or damage hull plates. General engineers have explained that the unique construction of the buffer enables them to build the new unit to cover a wide range of requirements. By increasing or decreasing the number of sandwiches, they can produce a unit to cover any variation of load capacities and docking conditions.

U. S. Laytex Portable Cord

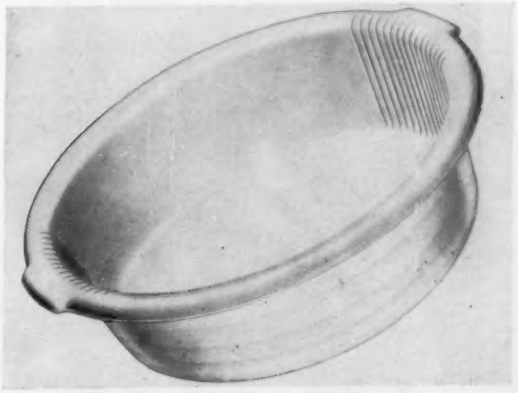
U .S. Rubber Co., 1230 Avenue of the Americas, New York 20, N. Y., has developed a new electrical cord for portable machinery that is said to have a service life three times longer than present highest quality cords. Called the "U. S. Laytex Royal Master Portable Cord," it is made for use with grinders, drills, power saws,



buffers and other types of heavy duty portable electrical tools. The U. S. Laytex Royal has, according to the company, 488% greater resistance to flexing than the average of present mold cured cords. It is said to be 118% more resistant to tearing and to have 197% greater impact strength. It is heat resistant, has more breaking strength than conventional cords, and greater resistance to cutting and abrasion, the company states.

Prettyware Rubbertub

Pretty Products, Inc., Rubberware Park, Coshocton, Ohio, is manufacturing an all-purpose "Rubbertub" that cannot be harmed by soaps, detergents or the hottest water. The Rubbertub has built-in washboard ridges



and easy to manage handles. Of approximately seven-quart capacity, the Rubbertub can be used for washing dishes, personal laundry, cooling beverages or serving punch. It comes in pink, yellow, white, blue and light green.

Take a long time for this copy of RUBBER AGE to reach your desk? Why not get a copy sent to your home? Use the coupon on page 787.

everybody talks
QUALITY
these pure light red iron oxides
by WILLIAMS assure it!
R-1599 R-2199 R-2899

They represent the ultimate in red iron oxide colors for the rubber industry.

Williams iron oxides come to you with all the benefits of our 75 years in the pigment business . . . and as a result of our experience in producing pure red iron oxides to specifications of the leading rubber companies.

Each is manufactured to rigid specifications for copper and manganese content, pH value, soluble salts, fineness, color, tint and strength by controlled processes and with special equipment. *The result is absolute uniformity of product.*

If you haven't already done so, try these finest of all iron oxide colors. Your own tests will show there is no equal for Williams experience.

LET WILLIAMS PUT THE MICROSCOPE ON *Your* COLOR PROBLEM

Whatever your color problem, bring it to Williams. Our 75-year experience can often save you time, money, and headaches in proper color formulation.

Address Dept. S,
C. K. Williams & Co., Easton, Pa.

IRON OXIDES • CHROMIUM OXIDES
EXTENDER PIGMENTS

WILLIAMS
COLORS & PIGMENTS
C. K. WILLIAMS & CO.
EASTON, PA. • EAST ST. LOUIS, ILL. • EMERYVILLE, CALIF.

Oronite

original and major producer of

POLYBUTENES

Since 1935, when Oronite Polybutene was first produced, this important raw material has been widely used in a variety of rubber products. You will find these clear, light colored, chemically inert liquids have a unique tacky property. A technical bulletin giving the physical characteristics and properties of Oronite Polybutenes is available to you on request. Our long experience with Polybutenes is at your disposal—contact the Oronite office nearest you.

TYPICAL TESTS OF ORONITE POLYBUTENES

	No. 24	No. 32	No. 128
Flash Point, Cleveland, °F.	375	385	480
Fire Point, Cleveland, °F.	435	450	570
Pour Point, °F.	20	35	60
Vis. at 100°F., S.S.U.	41,250	121,400	—
Vis. at 210°F., S.S.U.	1,050	2,950	18,620
Viscosity Index	110	118	—
Color, Gardner	1	1	1
Specific Gravity, 60/60°F.	0.90	0.90	0.91
Pounds per Gallon, 60°F.	7.2	7.5	7.6
Molecular Weight, Average (Approx.)	935	1,330	1,500
Acid Number (mg. KOH/gm.)	0.01	0.01	0.01
Carbon Residue, %	None	None	None
Free Sulfur, %	None	None	None
Total Sulfur, %	0.03	0.02	0.02
Organically Bound Chloride (as Chlorine), % by wt.	0.002	0.006	0.007
Inorganic Chlorides & Sulfates, %	None	None	None
Coefficient of Expansion per °C (between 15°C & 100°C)	.00065	.00060	.00061

"Basic Chemicals for Industry"

ORONITE CHEMICAL COMPANY

ORONITE CHEMICAL COMPANY
200 Bush Street, San Francisco 20, California
30 Rockefeller Plaza, New York 20, New York
714 W. Olympic Blvd., Los Angeles 15, Calif.
20 North Wacker Drive, Chicago 6, Illinois
Mercantile Securities Building, Dallas 1, Texas
Carew Tower, Cincinnati 2, Ohio

3402

Conveyor Belt Tray

Molded Fiberglass Tray Co., Linesville, Penna., has developed a 17- by 23-inch tray, eight inches deep, for use on conveyor belts on production lines. Made of a combination of fiberglass and polyester resins, the tray can also be used as a nesting box for parts storage. The new "Number 467" tray has additional reinforcements

at the ends, where the container comes in contact with other trays on a conveyor. Other advantages are a constant tare weight and the ability to hold its shape without denting or bending. Stronger than steel on a strength-weight basis, the plastic tray requires no maintenance and can be expected to last longer than trays made of other materials. The nesting feature makes possible substantial space savings in actual factory use.

Silentred Skate Wheels

Bond Rubber Corp., Derby, Conn., is manufacturing a new tan-colored roller skate wheel from a special compound based on Hycar. The wheels are 75% quieter

than conventional skate wheels, the company states, and give non-slip performance on any surface, eliminating the need for spreading powder on the skating surface. The wheels were developed by Cottrell, Inc. of Derby, Conn.

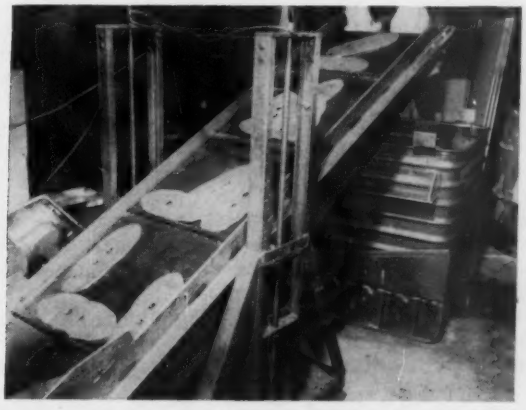
Vinyl-Covered Waste Baskets

Richly embossed vinyl plastic-covered metal waste-baskets are being manufactured by the Hedwin Corp., 1500 Roland Heights Ave., Baltimore, Md. The colorful baskets are covered with a material made from Geon vinyl plastic. They come in patterns called "Corde

Swirl," Trapunto Faille," "Checkerboard Nailhead," "Braided Rope," "Bubble Bead," and "Diamond Leather." These patterns are available in green, red, turquoise, black, pink and brown. The baskets are easily cleaned with a damp cloth and will not scratch, fray or unravel.

Goodyear Cleated Conveyor Belt

Goodyear Tire & Rubber Co., Akron 16, Ohio, has introduced a cleated conveyor belt, designed to carry small machined parts up steep inclines where regular flat-topped belts would be ineffective. The belting is available in a range of plies, cover thicknesses, widths



and rubber compounds to meet practically all customer specifications. The cleats, made of rubber, can be obtained in heights of ⅜-inch, ½-inch, one-inch and 1½ inches. Cleat widths and base reinforcements are designed to give maximum wear under normal factory use. The belt is designed to transport materials up grades of 30% or more.

GRAND COULEE DAM

Quality Makes the Difference

Do away with costly formula changes and adjustments in your compounding. Quality can make the difference — try A. Gross & Company's HYDROGENATED RUBBER GRADE STEARIC ACID and GROCO RED OILS. Uniform in all respects at all times, these fatty acids can help you avoid trouble. Try them and see.

For full information, send for our new catalog "Fatty Acids In Modern Industry"

	Red Oil GROCO 8	Hydrogenated Rubber Grade Stearic Acid
Titre	8° — 10° C.	55° C. min.
Cloud Point	46° — 49° F.	
Color 1" Lovibond Red	2 max.	8 max.
Color 1" Lovibond Yellow	15 max.	50 max.
Unsaponifiable	1.5% max.	
Saponification Value	198 — 203	198 min.
Acid Value	197 — 202	190 min.
% F.F.A. as Oleic Acid	99 min.	
Iodine Value (WIJS)	93 max.	13 max.
Refractive Index 50° C. (Average)	1.4495	

a. gross & COMPANY

MANUFACTURERS SINCE 1837

295 MADISON AVENUE, NEW YORK 17, N. Y.
FACTORY: NEWARK, N. J. • DISTRIBUTORS IN PRINCIPAL CITIES

THE CARTER BELL MFG. CO.
SINCE
CARTER BELL PRODUCTS
1903
SPRINGFIELD, NEW JERSEY

Vulcanized
VEGETABLE OILS

rubber substitutes

Types, grades and blends
for every purpose, wherever
Vulcanized Vegetable Oils
can be used in production
of Rubber Goods—
be they Synthetic, Natural,
or Reclaimed.

A long established and proven product.

THE CARTER BELL MFG. CO.
SPRINGFIELD, NEW JERSEY

Represented by
HARWICK STANDARD CHEMICAL CO.
Akron, Boston, Chicago, Los Angeles, Trenton, Albertville, (Ala.)

New Equipment

Model L-8 Scott Tester

In response to demand for apparatus to test rubber and other elastomers at increasingly greater extremes of high and low temperatures, Scott Testers, Inc., 112 Blackstone Street, Providence 1, R. I., is now offering its "Model L-8", an improved tensile tester with a range of 620°F. The new Scott instrument is designed for the determination of tensile stress (modulus), tensile

strength, percent elongation, and resistance to tear of elastomeric materials at temperatures ranging from —70° to +550°F.

For convenience of operation and maximum versatility, this tester is furnished in two units: the testing instrument and the conditioner. The testing instrument consists of the standard Scott rubber tester mounted on a special frame equipped with hot-cold test chamber. The tester has the long stroke and quick return features of the Model L series, and can be equipped with either a pendulum type weighing system or the "Accr-O-Meter" electronic weighing system. It can be equipped for one rate of pull, for a finite number of specific rates of pull, or with completely variable rates of pull over a wide range of speeds.

The test chamber surrounding the testing area is metal clad and lined with stainless steel, thus increasing both visibility and heat distribution. The chamber is illuminated with fluorescent lighting and the fully insulated glass paneled door affords a full length visibility of the complete testing stroke. The chamber is fitted with suitably located hand holes and insulated gloves for inserting the specimen. Upper and lower ports at the right of the chamber permit connection either to the Scott conditioning unit or to the user's own conditioning system. The Scott hot-cold conditioning unit is a separate and self-contained piece of equipment complete with both manual and automatic controls. It is designed to supply a sufficient volume of controlled air to maintain the test cabinet at any required temperature from —70°F to +550°F. The air is circulated by means of

an electric fan through stainless steel ducts and an automatically controlled mixing manifold.

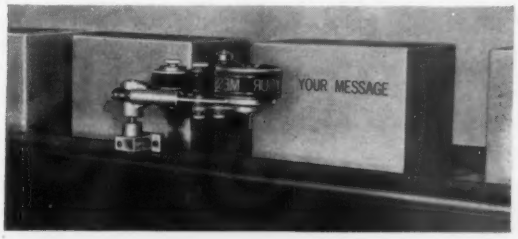
The temperature is controlled by a Brown recorder controller which may be manually set for a given temperature within the range and which maintains control of the temperature in the testing chamber within 1° of the operating range. Elevated temperature is accomplished by means of 6000 watts of electrical heating capacity manually actuated but automatically controlled.

Cooling is established by means of dry ice upon cooling coils. The refrigerant thus cooled is conveyed into the air stream where the cold is absorbed into the circulated air. The purpose of this is to eliminate any of the dry ice gas from the testing area, thus eliminating its corrosive effects. The heaters require either a single or three phase, 220 volt current, and the circulating fan, recorder, light, and automatic controls require a 110 volt, 60 cycle, single phase circuit. The hot-cold conditioning unit is mounted on casters and may be readily disconnected from the test unit and moved to other parts of the laboratory for conditioning other apparatus.

Where only elevated temperatures are required, Scott provides a high-temperature conditioning unit which maintains the test chamber at any selected temperature from room temperature up to 550°F. In general, its specifications are similar to those of the hot-cold unit, but it is not designed to be moved about.

Micro-Coder Marking Machines

American Marking Corp., 77 Lock Street, Newark 1, N. J., has introduced three new model coding machines —Micro-Coder Nos. 20, 22 and 23. Friction driven by contact with articles, large or small, usually on a conveying system, the coders find use in the marking of rubber and plastics products. The Micro-Coder has three rollers, a felt ink roller, a rubber transfer roller for



smooth, even ink distribution, and a type roller. There are two micrometer scale dials, one to adjust the transfer roller to the type roller and the other to adjust the transfer roller to the ink roller. This is said to make it easy to speedily install and adjust the marking machine so that all three rollers rotate together for correct contact with the article being printed. The unit has a series of "sure-grip" base lock plastic clamping rings that hold rubber type or logotypes securely in position. The Micro-Coder also has totally enclosed double springs that firmly hold the printing unit in contact with the object being marked. It has a cushioned shock absorber action on return from tension. This double spring arrangement enables it to mark articles from the top, bottom, right or left side as desired, without going to the trouble of changing springs. The unit is supplied with a 360 degree re-set for standard operations.

STRIKES A BLOW AT DEFLECTION

Plenty husky! We made it so — deliberately! There's weight everywhere — all the stamina you associate with Stewart Bolling design and construction. Other slabside presses are just as rugged — from the 24" x 24" with 14", 16" or 18" ram clear through the 48" x 48" slabside press with 36" ram. In addition to the slabside type, Stewart Bolling builds time tested 4-bolt type and full ring type presses in a wide range of sizes and tonnages.

Write for Bulletin A-8

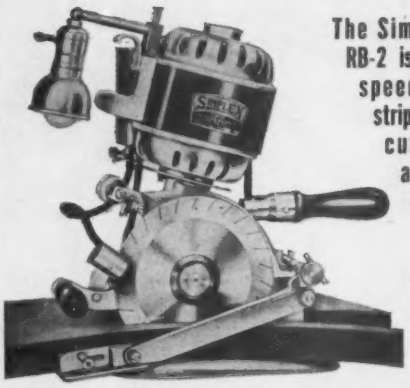
STEWART BOLLING & COMPANY, INC.

3194 EAST 65th STREET • CLEVELAND 27, OHIO

B INTENSIVE MIXERS • MILLS • CALENDERS
REFINERS • CRACKERS • HYDRAULIC PRESSES
PUMP UNITS • BALE SLITTERS • SPEED REDUCERS

SIMPLEX
REG. TRADE MARK

CUT 2500 FEET OF STRIP PER HOUR



The Simplex Model RB-2 is a new high speed, portable strip cutter that cuts efficiently and accurately.

U. S. Patent 2,294,497

The new Model RB-2 has a maximum cutting thickness of two inches, weighs 44.5 pounds, and is available in both A.C. and D.C. types. Manually operated, the machine is capable of cutting up to 20,000 feet of rubber strip in eight hours. A series of slits in the edge of the cutting blade carries water from a reservoir into the cut and not just to the top of the rubber being cut. This method lubricates the entire cut and produces a straight and even edge.

Simplex Cloth Cutting Machine Co., Inc.

Manufacturers of a Complete Line of Cloth Cutting Machinery

270 West 39th St. New York 18, N. Y.

Cable Address—SIMPLEX, N. Y. *Phone*—WIsconsin 7-5547

TIRE MOLDS

SPECIAL MACHINERY

TEAR TEST EQUIPMENT

---

fair prices
reliable delivery
good workmanship

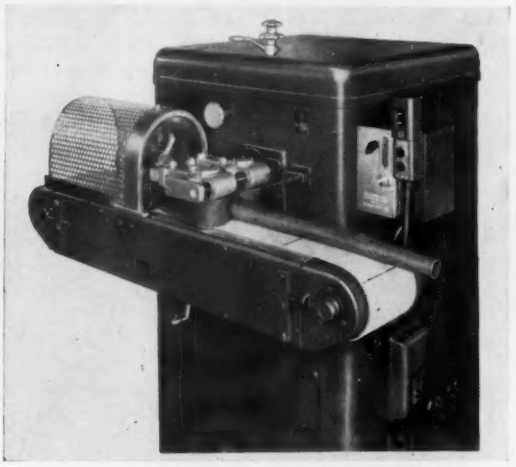
---

your inquiries are solicited

THE AKRON EQUIPMENT CO.
AKRON 9, OHIO

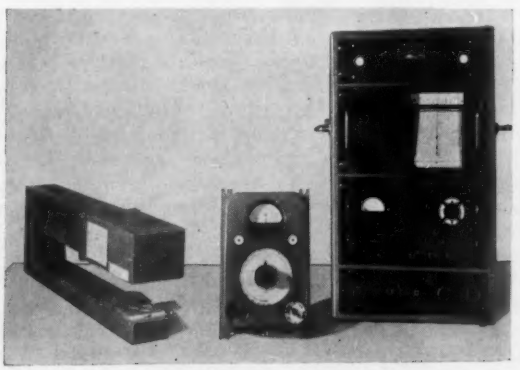
Wink Cutting Machine

Several improvements have been announced in the "Wink Cutter" manufactured by F. J. Fink & Co., 2348 Euclid Avenue, Cleveland 15, Ohio. The unit will cut rubber, plastics, impregnated fabrics, reinforced hose, stranded wire, asbestos, natural and synthetic fibers, and other materials up to 3 inches in diameter, hot or cold, wet or dry, continuously or intermittently, without distortion. The cutter will handle long lengths of 100 feet or more down to 1/16-inch slices on ½-inch diameter stock. Speeds of over 3,000 cuts per minute on special applications can be secured. There is said to be no recurrent loss of end stock through the use of the Wink Cutter. Waste is reduced as much as 90%. The unit is said to be especially valuable in cutting directly on the conveyor from the tuber or extruder. Action of the specially designed blades lifts the material slightly as it is being cut, the speed of the unit and other features eliminating distortion of the material. Even intricate shapes can be cut without distortion, the company states.



Curtiss-Wright Beta Gauge

The Electonics Division of the Curtiss-Wright Corp., Wood-Ridge, N. J., has introduced a new beta gauge designed to provide effective cost and quality control in rubber and other manufacturing plants where there is a continuous strip operation. The device utilizes radioactive isotopes and can provide automatic control of the

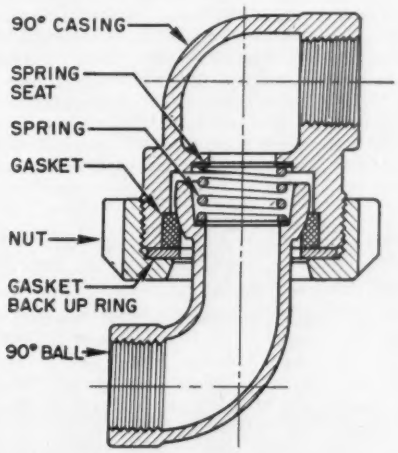


thickness of materials and coatings without respect to their chemical composition. The beta gauge consists of three units—an amplifier and recorder, a control unit, and a detector head and heat radiation source—and operates on the principle of the absorption of beta rays emitted by radioactive isotopes. A gauge working on the "backscattering" principle is also available.

Adaptable to many different weights and thicknesses, the range of the unit depends on the radioactive materials utilized. Thallium 204, for example, will penetrate materials up to 35 ounces per square yard, strontium 90 will measure thicknesses up to 170 ounces per square yard, and radium up to 670 ounces per square yard. The time constant involved in such measurements may be varied to suit the speed of the operation and ranges from one-tenth of a second to 2 seconds—or even higher, if the work requires it. The accuracy of the beta gauge depends to a degree on the material to be measured, but averages ± 1% better in many cases than the accuracy of the manufacturing machine itself.

High Pressure Swivel Joints

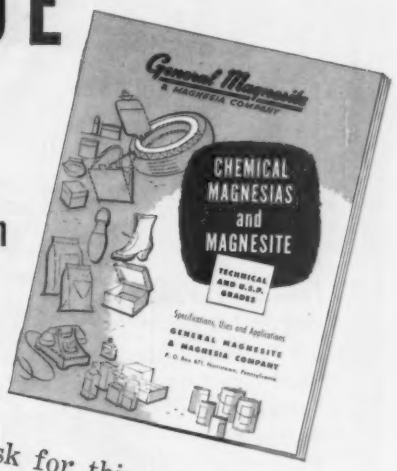
Series 600 Type S Swivel Joints produced by the Barco Manufacturing Co., Barrington, Ill., are now available in a complete range of sizes from ½ inch to 2 inches in four styles for high pressures and/or high temperatures. Swivel joints of this type are used to provide movement in metal piping connected to moving



or movable machinery. All stock sizes of these joints have malleable iron casing and steel ball; sizes 1½ inch and 2 inch have steel nut and they can also be furnished in all-steel construction. When equipped with Barco 11 MS (all metal) gaskets, the 1½ inch and 2 inch sizes are suitable for working pressures up to 2000 psi and are particularly recommended for hydraulic applications on die casting and plastic injecting machines where protection against blow-outs is essential. Barco swivel joints are said to feature a unique self-aligning design which simplifies and speeds up pipe fitting. The self-aligning feature also automatically eliminates binding and guards against wear. The illustration above shows a cross-section view of 1½ inch and 2 inch Barco Series 600 Type S Swivel Joints.

MAGNESIA GUIDE

1955 Edition



Ask for this new edition of listings, uses, and complete specifications of General Magnesite products —in convenient form for reference.

Magnesium Oxide

Technical and U. S. P. grades; EXTRA LIGHT — the original neoprene type; also Light, Medium, and Heavy grades.

Magnesium Carbonate

Technical and U. S. P. grades

Magnesite

Calcined Domestic and Imported; all types can be furnished unground and ground to meet exacting specifications.

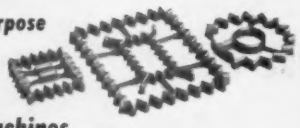
General Magnesite
& MAGNESIA COMPANY

P. O. BOX 671 NORRISTOWN, PA.

SAVE TIME
SAVE MONEY
with INDEPENDENT and NEW ERA DIES

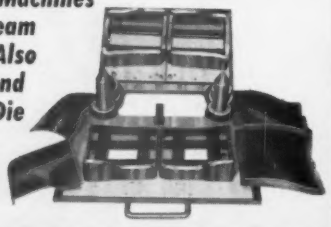
CLICKER-WALKER
PUNCH PRESS and
MAUL HANDLE

Dies For Every Conceivable Purpose



DISTRIBUTORS FOR:

Fales Clicker Machines and Seelye Beam Die Presses. Also Hard Maple and Composition Die Blocks and Pads. Raw Hide Mauls.



INDEPENDENT DIE & SUPPLY COMPANY
2602 LaSalle Place • St. Louis 4, Missouri
ASSOCIATE:
NEW ERA DIE CO. York County, Red Lion, Pa.

Decorate and Identify

Your Rubber or Vinyl Products with

MEYERCORD

ELASTICALS

for trade marks, instructions or high color rubber or vinyl product decorations, write to

ELASTICAL DIVISION

THE MEYERCORD CO.
World's Largest Decalcomania Manufacturers
DEPT. J-423, 5323 WEST LAKE STREET, CHICAGO 44, ILLINOIS

Reviews

BOOKS

Industrial and Manufacturing Chemistry: Part I—Organic. (7th Edition). By Geoffrey Martin (revised by Edward I. Cooke). Published by Philosophical Library, Inc., 15 East 40th St., New York 16, N. Y. 6 x 9½ in. 752 pp. $17.50.

This treatise on the applications of organic chemistry to the arts and manufactures, which embraces both British and American practice, has long been considered one of the outstanding works in its field. The last edition made its appearance in 1922 and this revised edition has been long overdue. The field of organic chemistry has become infinitely wider in the past three decades and some fields, such as the plastics industry, have advanced from those little known to the largest.

The basic pattern of the original work has been continued, namely, the treatment of specific industries by outstanding experts in their fields. Among these are the oil, fat, varnish and soap industry; the sugar, starch, cellulose, fermentation and charcoal industries; the turpentine, fuel gas, coal tar, dyestuffs, ink, paint and leather industries, and the glue, gelatine, drug, photographic chemical and tobacco industries. Full literary references are prefixed to each article.

No work on organic chemistry would be complete without special sections devoted to rubbers and plastics. The chapter on rubber has been completely revised by D. E. Partington, and now is divided into two sections devoted to natural and synthetic rubber, respectively, the first by A. J. Carrier and the second by G. Martin. A sub-section under natural rubber is devoted to an analysis of rubbers, prepared by G. H. Martin. Although occupying a limited number of pages, the data included is basic and is an excellent condensation.

The section on plastics is included for the first time and, again, has a good deal of information crammed into only some thirty pages. Prepared by Mr. Cooke, it treats briefly with the organic chemistry of the various plastics materials, including the phenolics, the urea resins, polyvinyl chloride, polystyrene and the ethenoid materials, such as polyethylene.

In all, the new work treats with the organic chemistry of twenty-four different industries. It includes both author and subject indexes.

•

Applications of Science in Rubber Technology. Published by Dyestuffs Division, Imperial Chemical Industries, Ltd., Manchester 9, England. 7¼ x 9¾ in. 101 pp.

Several years ago Imperial Chemical Industries issued a book under the title of "The Fundamentals of Rubber Technology" (Rubber Age, January, 1948). This book contained eight lectures given by invitation during the 1946-47 session on rubber technology at the Newton Heath Technical School in Manchester. The current publication, which is complementary in nature to the first work, is based on a subsequent series of lectures at the same school. It contains five lectures, all concerning the applications of science in rubber techlology, including: (1) General Introduction, by Dr. W. J. S. Naunton; (2) Chemistry and Rubber Technology, by Dr. J. T. Watts; (3) The Physical Sciences and Rubber Technology, by J. M. Buist; (4) Mathematical Statistics and Rubber Technology, by Dr. G. E. P. Box; (5) The Sciences and Rubber Growing, by E. J. McNaughton. As indicated in the preface, an approach rather different from that usually found in text books available to students of rubber technology is employed in the lectures, namely, the liaison between "pure" knowledge and its everyday application in the industry is systematically employed. This approach increases the practical value of the work.

•

Take a long time for this copy of RUBBER AGE to reach your desk? Why not get a copy sent to your home? Use the coupon on page 787.

Organic Chemistry Simplified (2nd Edition). By Rudolph Macy. Published by the Chemical Publishing Co., Inc., 212 Fifth Ave., New York 10, N. Y. 5½ x 8½ in. 612 pp. $12.00.

This completely revised and enlarged edition, which is based completely on the electron theory, is a thoroughly modern explanation of organic chemistry. It is somewhat different from all other text books on the subject in that it aims at giving the reader a broad concept of organic chemistry rather than attempt to convert his mind into an encyclopedia by memorizing all name reactions, experimental reaction conditions, and properties of many series of compounds. The main emphasis is placed on the development of the structures of the various types of compounds on the basis of the electron theory. In following this pattern, the book is divided into four principal sections, as follows: (1) The Unique Position of the Carbon Atom in Chemistry; (2) The Architecture of Carbon Compounds; (3) The Classification of Carbon Compounds; (4) Special Topics in Organic Chemistry. Over 120 line drawings and photographs of molecular models contribute to the clarity of presentation. The explanations are clear enough so that the book can be used as a self-teaching manual. A cross-referenced subject index is included.

•

Annual Report on the Progress of Rubber Technology: 1954. (Vol. XVIII). Edited by T. J. Drakeley. Published by the Institution of the Rubber Industry, 12 Whitehall, London, S.W.1, England. 7¼ x 9¾ in. 186 pp. Price: £1, 1s., Od (approximately $3.00).

Once again the rubber manufacturing industry should be grateful to the Institution of the Rubber Industry for another excellent report on the progress of rubber. Like the preceding editions, this latest one, covering the year of 1954, is comprehensive in its coverage of the various branches of the rubber industry, each section being contributed by an outstanding expert in his field. Among the general subjects covered are the planting and production of raw rubber and latex, the chemistry and physics of raw and vulcanized natural rubber, synthetic rubber, compounding ingredients, fibers and fabrics, and testing equipment. Specific products covered include tires, belting, hose and tubing, footwear, mechanical goods, surgical goods, cellular rubber, hard rubber goods, flooring and roads. As usual, excellent cross-referenced author and subject indexes are included. As pointed out in the foreword to this 1954 edition, these reports cannot be regarded in the light of bibliographies, but they do present a mosaic picture of the pattern of progress in the rubber manufacturing field.

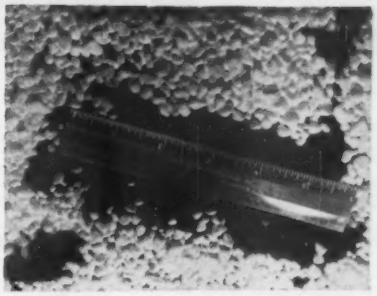
•

Coordination, Control and Financing of Industrial Research. Edited by Albert H. Rubenstein. Published by King's Crown Press, Columbia University, Morningside Heights, New York, N. Y. 5½ x 8½ in 428 pp.

The Department of Industrial Engineering of Columbia University sponsors an annual conference on industrial research. Each conference is built around a central theme, that for the 1954 conference being the coordination, control and financing of industrial research. All of the papers presented at that conference, as well as some selected papers from the 1953 conference (for which no proceedings were published), are contained in the present volume. In all, twenty-eight separate papers are included, covering a large number of topics tied in with the central theme. Many of these papers are built around case histories and represent practical rather than theoretical value. In addition, relevant and abridged material from the various clinic session discussions, a feature of the annual conference, has been rearranged and included by subject. This report is of value to all concerned with the problems of industrial research.

To Eliminate Dust and Cut Costs
IN NEOPRENE COMPOUNDING

Use DCI
"Tested and Proved"
GRANULAR LIGHT CALCINED MAGNESIA



Here is magnesia of the highest quality in granular form —practically dust-free. Each particle is uniform in crystal structure and chemical content. Strict manufacturing standards and quality control are your assurance of the cleanest and finest magnesia with low iron, calcium and manganese oxides content.

Additionally, protective packaging seals out dust and moisture. All of this means you get the important qualities in magnesia for neoprene compounding without paying a premium. Ask for a sample today. Test and you'll know. Write:

DARLINGTON CHEMICALS, INC.
1420 Walnut Street, Philadelphia 2, Pa.

Represented by:
Summit Chemical Co., Akron, Ohio
Tumpeer Chemical Co., Chicago, Ill.

SPECIAL INDUSTRIAL
FABRICS
for the
RUBBER INDUSTRY

FLIGHTEX FABRIC
U.S. PAT. OFFICE
REGISTERED

• COTTON • DYNEL
• VINYON • ORLON
• GLASS

If you use special industrial fabrics you'll find Flightex a dependable source of supply. Our staff of engineers is at your service to help solve your fabric problems.

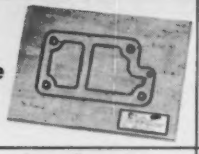
Write for Complete Information

FLIGHTEX FABRICS, Inc.
93 Worth Street New York 13, N. Y.

RUBBER FABRICATORS NEED ACCURATE CUTTING DIES

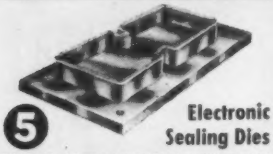
For Cutting
Rubber, Neoprene, Plastics, etc.
Sheeting, Foam, Sponge, Cellular,
Cured & Uncured
Gang Dies Our Specialty

3 Mallet Handle Dies

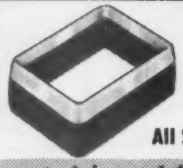


4 Steel Rule Cutting Dies

2 Steel Rule Clicker Dies



5 Electronic Sealing Dies



1 All Steel Dies

We can also die cut your materials on jobs you don't wish to handle yourself.

Dies for cutting gaskets, flashing from molded parts, rubber soles, foam and sponge for furniture padding, inflated toys, clothing and footwear, etc.

SAME DAY SERVICE

ACCURATE
STEEL RULE DIE MANUFACTURERS
24-28 W. 21 ST. • N. Y. 10, N. Y. • CHelsea 2-0860-1
Intelligent Service to Industry for Almost a Quarter Century

BUILDS STRONG BODY

clean mechanized production
•
Speedy Delivery
•
Produced by the BELL MINE in Batesburg, S. C.
•
Meets Bell's rigid requirements for
UNIFORMITY • SERVICE
RELIABILITY • QUALITY

Distributed by WHITTAKER CLARK & DANIELS, INC.
260 West Broadway • New York 13, N. Y. • "The Talc House"

REVIEWS (CONT'D)

Conversion Factors and Tables. (Second Edition). By O. T. Zimmerman and Irvin Lavine. Published by Industrial Research Service, Inc., Masonic Building, Dover, N. H. 4½ x 6 in. 525 pp. $5.00.

Designed for the convenience of all technical workers—engineers, chemists, physicists, mechanics, etc.—this book contains numerous conversion factors between two covers. Greatly expanded over the first edition, it lists over 12,000 conversion factors and contains 113 pages of conversion tables based on the latest and most accurate data. Among the conversion factors included are those pertaining to weights, measures, velocities, densities, viscosities, pressures and energies. Units covered include mechanical, electrical, thermal, nautical and astronomical. Among the new tables included in this edition are those pertaining to hardness conversion factors, foreign money equivalents, wire and sheet metal gages, and color scale conversions for liquids. A major feature of the book, other than the value of its contents, is the clarity and spacing of the type employed. This is a most handy work to have around the factory or laboratory.

•

Techniques of Plant Maintenance and Engineering: 1955. Published by Clapp & Poliak, Inc., 341 Madison Ave., New York 17, N. Y. 8½ x 11 in. 218 pp. $7.50.

This book is a report of the proceedings of the annual conference held concurrently with the 1955 Plant Maintenance and Engineering Show. Twenty-three prepared papers were presented at the conference, all of which are included. A highlight of the volume is the text of more than one thousand questions presented by some 2400 executives to the 56 experts, drawn from the nation's leading industrial plants, who led the discussions. The question-and-answer section of the book gives a vivid picture of current maintenance problems being faced by the nation's plants. Although most presentations dealt with problems applicable to all plants, five industries drew special attention, including chemical, food, paper mill and paper products, steel and textile. In addition to the full papers and discussions, 16 roundtables, without prepared papers, are summarized.

•

Brand of the Tartan: The 3M Story. By Virginia Huck. Published by Appleton-Century-Crofts, Inc., 35 West 32nd St., New York 1, N. Y. 6 x 9 in. 260 pp. $3.50.

This is the story of the Minnesota Mining and Manufacturing Company, the growth of which in the past five decades is a clear-cut case history in the practical operation of the American free enterprise system. The layman best knows the company through its "Scotch Tape" and the rubber industry recognizes it as one of the prime suppliers of adhesives, but it takes a reading of the book to realize that 3M actually handles some 25,000 different items. How the company achieved its success is faithfully recorded in the volume. The role played by the company in the development of synthetic rubber through its participation in the National Synthetic Rubber Corporation is detailed in the chapter on "After Pearl Harbor." In the final analysis, however, the book is a story of the people who guided Minnesota Mining to its present levels.

•

Neues Gummi-Adressbuch: 1955 (New Rubber Directory: 1955). Published by Curt R. Vincentz Verlag, Hanover, Germany. 5¾ x 8¼ in. 544 pp. Price: 32 marks (approximately $8.00). (In German).

The latest edition of this German handbook of the rubber and asbestos industries has been revised and brought completely up to date. The major section, as usual, is devoted to a listing of rubber and asbestos product manufacturers, the listings being arranged alphabetically under specific cities and towns. Additional information in the new edition includes sources of supply on rubber chemicals and compounding ingredients, machinery and equipment, natural and synthetic rubbers, fabrics and textiles, and other materials utilized in the manufacture of rubber products. A "Who's Who" of the German rubber and asbestos industries is also included.

BOOKLETS, CATALOGS, etc.

Sandvik Steel Belt Conveyors. Conveyor Department, Sandvik Steel, Inc., 111 Eighth Ave., New York 11, N. Y. 8½ x 12 in. 48 pp.

This hard-covered book gives extensive engineering and application information on Sandvik steel belt conveyors. Fully-illustrated with both photographs and drawings, the book is a thorough presentation on conveying via a solid steel band. It describes the basic features of the conveyor and the steel belt and gives details on characteristics, capacities, adaptations and design. One section is devoted to pictures and descriptions of typical steel belt conveyors as used in a wide variety of applications in many different industries. This section also shows details of conveyor components such as idlers, drive, tension end, discharge devices, safety scrapers, etc. Another section gives the reader a step-by-step illustrated description of the construction of a typical steel belt conveyor. This includes information on the conveyor structure, end pulleys and idlers, the joint, safety devices, loading and discharge devices, capacity and "breaking-in" procedure. The properties of both stainless and carbon belts are discussed and a list of standard widths and thicknesses for both single and longitudinally jointed belts is given. The load capacities of various widths of belt as applied to specific types of materials are also indicated.

•

Guides to Effective Production Management. (Manufacturing Series No. 218). American Management Association, 330 West 42nd St., New York 36, N. Y. 6 x 9 in. 48 pp. $1.75 (non-members); $1.00 (members).

The five papers published in this booklet were originally presented at the Fall Manufacturing Conference of the American Management Association in New York City in the autumn of 1954. One of the papers discusses the need for translating production goals such as increased output and efficiency into net profit. Another, discusses hidden transportation costs which were brought to light by a survey commissioned by the American Trucking Association. Still another paper discusses quality control as an "engineering-management approach to problems formerly handled indipendently by many experts." The fourth paper discusses how to make major cost reductions through increased efficiency of procurement and handling systems, thus making possible lower inventory levels. The last paper published in this interesting booklet, discusses the question of improved human relations as a direct link to the ballot box and the future of free enterprise.

•

Fortisan 36: General Data and Physical-Chemical Properties. (Bulletin TD-20). Textile Division, Celanese Corporation of America, Charlotte, N. C. 8½ x 11 in. 12 pp.

This bulletin uses text, charts and diagrams to present information on the technical properties and characteristics of Fortisan 36, as well as recommendations as to its processing. Fortisan 36, which has a tenacity in excess of 8 grams per denier and a high modulus of elasticity, is expected to find its first application in the mechanical rubber goods industry for V-belts, conveyor belts, high pressure hose and fire hose. It is also being evaluated for a number of other uses.

•

Swivel Joints for Piping. (Catalog No. 265-B). Barco Manufacturing Co., 500 Hough St., Barrington, Ill. 8½ x 11 in. 12 pp.

This revised catalog is one of the most comprehensive ever published on the subject of swivel joints for piping, and contains complete specifications, dimensions, and application data for the Barco line of joints. This catalog will be of particular interest to design engineers as well as to operating engineers in plant and field installations.

D P R ®

100% ALL RUBBER SOLIDS

Natural & synthetic rubbers in flowable form.

Also special grades having superior compatibility with asphalt and polyethylene.

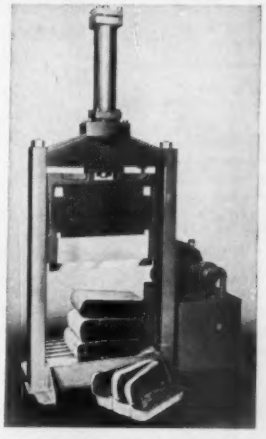
TECHNICAL LABORATORY INFORMATION AND SAMPLES UPON YOUR REQUEST

ORIGINATORS OF QUALITY DEPOLYMERIZED RUBBERS "SINCE 1906"

D P R, INCORPORATED
A Subsidiary of H. V. HARDMAN CO.
571 CORTLANDT STREET
BELLEVILLE 9, N. J.

CRUDE, SYNTHETIC, RECLAIMED

RUBBER BALE CUTTER



A moderately priced machine, simple in design and economical in operation, that fully meets all requirements. Hydraulically operated and completely self - contained. The heavy - duty knife will cut a full 29-inch width (opening is 23 inches high). Bales can be cut to minimum 1-inch slabs. Bales are easily advanced for cutting as they rest on ball-bearing rollers. Only one operator is required and built-in controls provide safe operation.

SPADONE Cutters will give years of satisfactory service and large production is assured. Furnished completely assembled and ready for operation. Write for complete information.

SPADONE MACHINE CO. INC.
SOUTH NORWALK, CONNECTICUT Phone: VOlunteer 6-1087

MARKETS

NEWS-PRICES

NEW YORK, AUGUST 5, 1955

Natural Rubber

Since our last report (July 7), the price of spot rubber on the New York Commodity Exchange has moved in the extremely wide range of 1,037 points, high for the period being 48.12c reached on August 4, and low being 37.75c reached on July 8. The average price of spot rubber for the month of July was 40.84c based on 20 trading days. This compares with an average of 34.74c in the previous month.

World rubber markets continue to skyrocket with new highs registered from day to day. The progressively higher prices, however, are not bringing forth any increased offerings of rubber from first hands, the trade reports.

The statistical position remains substantially the same. It has been expressed that the upsurge in the price structure is purely a reflection of world competition for the expected deficit of approximately 50,000 tons of rubber, or even less.

The trade reports that current market factors encourage "bullishness." However, in spite of the strength of the world market, there is more widespread caution than has been noted in recent months. This is apparently predicated on the possibility of an unforeseen development which might reverse the trend.

Supply and Demand Factors

H. C. Bugbee, president of the Natural Rubber Bureau, writing in the August issue of the "Natural Rubber News," points out that the continuing high prices for natural rubber are due to the simple economics of supply and demand. With world consumption of natural materially exceeding production for the first six months of 1955, he said, it is little wonder that we are experiencing the sort of super boom in natural rubber prices which can do the natural rubber industry so much harm in the long run. What is faced is the simple fact that with the European as well as the American economies booming, the world demand for natural rubber—in spite of capacity production of synthetic—is temporarily greater than supply.

Mr. Bugbee observed that: "Clearly, however, this is a predicament which cannot be laid at the door of the producer. All a producer can do in such a situation is to produce as much as he can, and few producers voluntarily fail to get production up as much as they can in such a market.

Mr. Bugbee, taking note of several recent statements to the effect that the natural rubber stockpile should be diminished and its rubber sold on the open market, stresses that stockpile legislation was passed to create a reservoir of natural rubber for use in case of war, and not to influence market movements.

He points out that Public Law 520 of the 79th Congress states that "the plan and date of disposition (natural rubber sales from stockpile) shall be fixed with due regard to the protection of the U. S. against avoidable loss on the sale or transmission of the material and the protection of producers, processors and consumers against avoidable disruption of their usual markets."

Price Data

Closing Rubber Prices on New York Commodity Exchange (No. 1 R.S.S. Contract)

FROM JULY 8 TO AUGUST 5

July	Spot	Sept.	Dec.	Mar.	May	Sales
8	37.75	38.00	36.05	34.80	33.85	251
9	....	....	....	....	....	....
10	....	....	....	....	....	....
11	39.25	39.40	38.05	36.60	35.45	292
12	40.00	40.10	38.50	36.80	35.80	260
13	40.25	40.60	39.00	37.00	35.75	247
14	41.00	41.20	39.80	37.90	36.35	425
15	40.00	40.15	38.85	36.85	35.60	150
16	....	....	....	....	....	....
17	....	....	....	....	....	....
18	40.75	41.00	39.90	37.90	36.45	87
19	40.75	41.00	40.00	38.35	37.00	299
20	41.88	42.00	41.05	39.85	38.80	387
21	42.50	42.75	41.70	40.90	39.90	559
22	42.00	42.30	41.35	40.40	39.40	302
23	....	....	....	....	....	....
24	....	....	....	....	....	....
25	42.75	42.90	41.95	40.95	39.95	111
26	42.50	42.65	41.80	40.85	39.85	144
27	43.50	44.00	43.15	42.10	41.10	386
28	43.62	44.30	43.25	42.20	41.30	374
29	44.62	45.00	44.20	43.25	42.20	727
30	....	....	....	....	....	....
31	....	....	....	....	....	....
Aug.						
1	44.62	45.00	44.30	43.30	42.40	337
2	44.88	45.35	44.65	43.65	42.70	366
3	46.88	47.25	46.75	45.65	44.65	484
4	48.12	48.40	48.05	47.15	46.00	419
5	47.50	48.00	47.60	46.60	45.55	540

Outside Market

No. 1 Ribbed Smoked Sheets:	
Spot	.47¼
August	.47¼
September	.47⅜
Thin Latex Crepe:	
Spot	.48⅜
Thin Brown Crepe, No. 2	.39¼
Flat Bark Crepe	.37½

London Market

(Standard Smoked Sheets)

September	49.81 - 49.95
Oct.-Dec.	49.81 - 49.95

Singapore Market

(Standard Smoked Sheets)

September	50.21 - 50.28

Middling Upland Quotations

	July 7	August 5		
	Close	High	Low	Close
Oct.	34.17	33.84	33.61	33.68
Dec.	34.36	34.04	33.80	33.91
Mar.	34.25	33.92	33.72	33.80

Notes and Quotes

The United States synthetic rubber producing industry, in its first two months of private ownership and operation, turned out rubber at a rate comparable with the highest level in the industry's history, according to William I. Burt, president of Goodrich-Gulf Chemicals, Inc. Mr. Burt stated that during May and June, the first two months under private ownership, the entire United States synthetic rubber industry turned out about 160,300 long tons of synthetics, of which approximately 130,700 long tons were GR-S type. This record rate of production, he emphasized, 73% higher than in May and June, 1954, was reached in spite of the fact that the Institute plant, rated at 122,000 long tons of annual capacity, is in standby. The only two-months' period of synthetic rubber production which surpassed that of May-June, 1955, was the Korean war months of April and May, 1953, when the Institute plant was in full operation and total U. S. synthetic production reached 168,254 long tons. Mr. Burt said that synthetic rubber plants are now supplying 60% of America's total new rubber needs with natural accounting for only 40%.

Synthetic Rubber

A substantial increase in production of synthetic rubber is foreseen in the last half of the year, Harvey S. Firestone, chairman of the board of the Firestone Tire & Rubber Co., stated recently as he announced that the company plant at Lake Charles, La., will produce about 30% more during this period than was produced during the first half of the year.

Mr. Firestone disclosed that the expansion under way at Lake Charles will enable the plant by December to produce at the rate of 150,000 long tons of synthetic rubber annually, an increase of 50% above its rated capacity when it was purchased from the government last April. Due to expansion in the last three months, output in July rose to the annual rate of 123,000 long tons. During 1954, under government scheduled production, the Lake Charles facility turned out 63,000 long tons of synthetic rubber.

Operating at Capacity

The Akron synthetic rubber plant, which Firestone also purchased from the government last Spring, is operating at full capacity, turning out newly-processed cold synthetic rubber latex and special types of synthetic rubbers.

Commenting upon the demand for rubber abroad, Mr. Firestone noted that during recent months there has developed a strong demand in foreign countries for American-produced synthetic rubber. Tire manufacturers abroad are now recognizing its quality advantages, he said. They also realize that by having two sources of rubber supply, they will not be entirely dependent upon Far Eastern sources, as they have in the past. For this reason, there will be an increasing demand from abroad for any synthetic rubber not required to meet American domestic needs, Mr. Firestone declared.

Mr. Firestone pointed out that the company's expansion of synthetic rubber facilities will further strengthen Firestone's position as the world's largest producer of rubber. The Firestone organization today has nearly 90,000 acres of rubber trees on its plantations in Liberia, West Africa. These plantations have been developed by the company since 1926 and output is being expanded through addition of new areas and replanting of old areas.

New Synthetic Plant

Goodrich-Gulf Chemicals, Inc., has announced plans to construct manufacturing facilities to produce its new synthetic rubber which synthetically duplicates the natural product. A pilot plant to make the chemical "tree rubber" will be located in Northern Ohio and is expected to be in operation in nine months to a year. When these facilities are completed, materials for testing will be available to other companies, it was said.

Announcement that Goodrich-Gulf scientists, working in the B. F. Goodrich Research Center, Brecksville, Ohio, had succeeded in reproducing the true molecule of natural rubber was made in December, 1954. Patent applications have been filed on the new rubber with the U. S. Patent Office.

Recently, Goodrich stated that large truck tires made entirely of the new synthetic processed similarly to natural rubber during manufacture and are now giving satisfactory service in fleet operations. Goodrich-Gulf states that the new material will not be in direct competition with GR-S types but with the tree-grown material.

PRICES OF COMMERCIALLY AVAILABLE SYNTHETIC RUBBER POLYMERS

(dry types—per pound carload unless otherwise specified)

Butadiene-Acrylonitrile Types

Butaprene NAA	.5400 [2]
Butaprene NF	.4900 [2]
Butaprene NL	.5000 [2]
Butaprene NXM	.5800 [2]
Chemigum 30N4NS	.5000 [2]
Chemigum 50N4NS	.5000 [2]
Chemigum N3	.5800 [2]
Hycar OR-15	.5800 [2]
Hycar OR-25	.5000 [2]
Paracril B	.5000 [2]
Paracril BJ	.5000 [2]
Paracril C	.5800 [2]
Polysar Krynac	.5000 [2]
Polysar Krynac 801	.5800 [2]
Polysar SS-250-K	.3000 [2]

Butadiene-Styrene Types

ASRC 1500	.2410 [2]
ASRC 1502	.2410 [2]
Baytown 1600	.1850 [2]
Baytown 1601	.1850 [2]
Baytown 1602	.1850 [2]
Baytown 1801	.1700 [2]
Butaprene S-1000	.2300 [2]
Butaprene S-1001	.2300 [2]
Butaprene S-1004	.2300 [2]
Butaprene S-1005	.2800 [2]
Butaprene S-1006	.2300 [2]
Butaprene S-1009	.2455 [2]
Butaprene S-1010	.2450 [2]
Butaprene S-1012	.2700 [2]
Butaprene S-1013	.2500 [2]
Butaprene S-1014	.2700 [2]
Butaprene S-1015	.2800 [2]
Butaprene S-1500	.2300 [2]
Butaprene S-1502	.2300 [2]
Butaprene S-1703	.1950 [2]
Butaprene S-1705	.1925 [2]
Butaprene S-1710	.1775 [2]
Butaprene S-1712	.1775 [2]
Copo 1500	.2410 [3]
Copo 1502	.2410 [3]
Copo 1712	.1712 [3]
G-G 1001	.2410 [3]
G-G 1002	.2435 [3]
G-G 1006	.2410 [3]
G-G 1500	.2410 [3]
G-G 1501	.2410 [3]
G-G 1502	.2410 [3]
G-G 1703	.2060 [3]
G-G 1705	.2035 [3]
G-G 1706	.2035 [3]
G-G 1707	.1910 [3]
G-G 1709	.1885 [3]
G-G 1710	.1885 [3]
G-G 1711	.1885 [3]
G-G 1712	.1885 [3]
Hycar OS-10	.5500 [2]
Naugapol 1016	.2550 [3]
Naugapol 1018	.2600 [3]
Naugapol 1019	.2550 [3]
Naugapol 1021	.2900 [3]
Naugapol 1022	.2600 [3]
Naugapol 1023	.2650 [3]
Naugapol 1503	.2550 [3]
Naugapol 1504	.2650 [3]
Philprene 1000	.2500 [1]
Philprene 1001	.2500 [1]
Philprene 1006	.2500 [1]
Philprene 1009	.2550 [1]
Philprene 1018	.2575 [1]
Philprene 1019	.2525 [1]
Philprene 1100	.1990 [1]
Philprene 1104	.1940 [1]
Philprene 1500	.2500 [1]
Philprene 1502	.2500 [1]
Philprene 1503	.2525 [1]
Philprene 1600	.2000 [1]
Philprene 1601	.2000 [1]
Philprene 1602	.2000 [1]
Philprene 1605	.1940 [1]
Philprene 1703	.2120 [1]
Philprene 1706	.2100 [1]
Philprene 1708	.1970 [1]
Philprene 1711	.1940 [1]
Philprene 1712	.1940 [1]
Philprene 1803	.1800 [1]
Plioflex 1000	.2425 [3]
Plioflex 1006	.2425 [3]
Plioflex 1502	.2425 [3]
Plioflex 1703	.2075 [3]
Plioflex 1710	.1900 [3]
Polysar Krynol	.1890 [2]
Polysar Krynol NS	.1940 [2]
Polysar "S" Types	.2300 [2]
S-1000	.2300 [2]
S-1001	.2300 [2]
S-1006	.2300 [2]
S-1100	.1850 [2]
S-1500	.2300 [2]
S-1501	.2300 [2]
S-1502	.2300 [2]
S-1600	.1850 [2]
S-1602	.1850 [2]
S-1703	.1950 [2]
S-1706	.1925 [2]
S-1707	.1800 [2]
S-1709	.1775 [2]
S-1712	.1775 [2]
S-1801	.1700 [2]
Texas-U. S. 1000	.2425 [3]
Texas-U. S. 1001	.2425 [3]
Texas-U. S. 1002	.2450 [3]
Texas-U. S. 1006	.2425 [3]
Texas-U. S. 1007	.2425 [3]
Texas-U. S. 1009	.2475 [3]
Texas-U. S. 1012	.2425 [3]
Texas-U. S. 1013	.2500 [3]
Texas-U. S. 1500	.2425 [3]
Texas-U. S. 1703	.2075 [3]
Texas-U. S. 1707	.1925 [3]
Texas-U. S. 1711	.1900 [3]

Butyl Rubbers

Enjay Butyl 035	.2300 [2]
Enjay Butyl 150	.2300 [2]
Enjay Butyl 165 NS	.2400 [2]
Enjay Butyl 215	.2300 [2]
Enjay Butyl 217	.2300 [2]
Enjay Butyl 218	.2300 [2]
Enjay Butyl 268 NS	.2400 [2]
Enjay Butyl 325	.2300 [2]
Enjay Butyl 365 NS	.2400 [2]
Polysar Butyl Types	.2300 [2]

Neoprene

	(prices l.c.l.)
Neoprene Types AC and CG	.5500 [2]
Neoprene Type GN	.4100 [2]
Neoprene Type GN-A	.4100 [2]
Neoprene Type GRT	.4200 [2]
Neoprene Type KNR	.7500 [2]
Neoprene Type S	.4200 [2]
Neoprene Type W	.3900 [2]
Neoprene Type WRT	.4500 [2]

Silicone Rubbers

	(prices l.c.l.)
GE (compounded)	2.50 [2]
GE Silicone Gum (not compounded)	4.00 [2]
Silastic (compounded)	1.95 [2]

Polysulfide Rubbers

	(prices l.c.l.)
Thiokol Type A	.4700 [2]
Thiokol Type FA	.6400 [2]
Thiokol PR-1	.9500 [2]
Thiokol Type ST	1.00 [2]

(latices—all prices per pound dry weight)

Butadiene-Acrylonitrile Types

Chemigum 101	.3500 [2]
Chemigum 200	.4700 [2]
Chemigum 235	.5500 [2]
Chemigum 245	.4700 [2]
Hycar 1512	.4600 [2]
Hycar 1551	.5400 [2]
Hycar 1552	.4600 [2]
Hycar 1561	.5400 [2]
Hycar 1562	.4600 [2]
Hycar 1571	.5900 [2]
Hycar 1572	.5100 [2]
Hycar 1577	.4600 [2]

Butadiene-Styrene Types

Butaprene S-2000	.2600 [2]
Butaprene S-2001	.2600 [2]
Butaprene S-2002	.2850 [2]
Butaprene S-2003	.2950 [2]
Butaprene S-2004	.2950 [2]
Butaprene S-2006	.2600 [2]
Copo 2101	.2800 [3]
Copo 2102	.3100 [3]
Copo 2105	.3100 [3]
Copo X-765	.2900 [3]
Pliolite 2101	.2775 [3]
Pliolite 2104	.2800 [3]
Pliolite 2105	.2800 [3]
Pliolite X-765	.2650 [3]
Naugatex 2000	.2630 [2]
Naugatex 2001	.2630 [2]
Naugatex 2002	.2880 [2]
Naugatex 2005	.3000 [2]
Naugatex 2006	.2630 [2]
Naugatex 2101	.2850 [2]
Naugatex 2105	.3120 [2]
Naugatex X-767	.3230 [2]
S 2000	.2275 [2]
S 2004	.2600 [2]
S 2101	.2250 [2]

Neoprene

Neoprene Latex 571	.3700 [2]
Neoprene Latex 572	.3900 [2]
Neoprene Latex 601-A	.4000 [2]
Neoprene Latex 735	.3800 [2]
Neoprene Latex 736	.3800 [2]
Neoprene Latex 842-A	.3700 [2]
Neoprene Latex 950	.4700 [2]

Polysulfide Rubbers

Thiokol Type MX	.7000 [2]
Thiokol Type WD-2	.9200 [2]
Thiokol Type WD-6	.7000 [2]

Notes: (1) Freight allowed. (2) Freight extra. (3) Freight prepaid.

LA GOMA

Monthly Technical Journal
The First Rubber Journal in Spain
Founded: January, 1929

Founder, owner, director and administrator:
Juan Blanch Guerrero

Calle de Moncada, 4, tienda, Barcelona, Spain

Annual Subscription:

Spain ..... 100 pesetas
Foreign ..... 125 pesetas

KAUTSCHUK UND GUMMI

Official Journal of the German Society of Rubber Chemists and Technologists (Deutsche Kautschuk-Gesellschaft e.V.) the most quoted and authoritative German Rubber Journal.

KAUTSCHUK UND GUMMI promotes international exchange of ideas concerning economic, technical and scientific problems involved in the different phases of the manufacture of rubber and asbestos products. Business experts and authorities in science and technology supply facts, opinions and research results. Reports and information from the industry's various associations are included.

KAUTSCHUK UND GUMMI is an excellent advertising medium which speaks to just those firms in the import and export trade to whom you want to speak. Specimen copy and advertising rates on application to the publishers.

KAUTSCHUK UND GUMMI
Berlin - Borsigwalde • Frankfurt am Main

MARKETS

NEWS-PRICES

NEW YORK, AUGUST 5, 1955

Reclaimed Rubber

Production of reclaimed rubber in July is reported to have fallen off somewhat due in large part to plant shutdowns for the vacation period. It is expected that August statistics will show a similar decline in consideration of the fact that many automobile manufacturers are entering a period of model changeover. As for September, it is expected that the volume of business activity will once again move upward.

The Department of Commerce advises that according to its preliminary estimates, 134,741 long tons of reclaimed rubber were produced in the first five months of this year, against the 107,077 produced in the first five months of the preceding year. In the first five months of 1955, 420 long tons were imported, making a total new supply of 135,161 long tons. In the first five months of the previous year, 428 long tons were imported, making a total new supply of 107,505 long tons. Through May of 1955, 132,627 long tons of reclaim were consumed, contrasted with the 103,876 long tons consumed in the first five months of 1954.

(Prices for All Areas Except Calif.)

	per lb.
Premium Grade Whole Tire	.10½
First Line Whole Tire	.10
Second Line Whole Tire	.09½
Third Line Whole Tire	.09¼
Fourth Line Whole Tire	.08¾
Black Carcass	.14¼
No. 1 Light Colored Carcass	.20¾
No. 1 Select Peel	.11¾
No. 1 Peel	.10½
Butyl Tube Reclaim	.15
Natural Rubber Black Tube	.15
Natural Rubber Red Tube	.21
Natural Rubber Gray Tube	.21

Scrap Rubber

Activity in the scrap rubber market was slowed somewhat in recent weeks as a result of vacation shutdowns by several reclaimers. Some pickup in activity is anticipated however, now that most reclaimers have resumed operations. Generally quiet conditions prevailed in the market for scrap rubber in the period immediately preceding the vacation shutdowns by reclaimers.

Exports of scrap rubber in March declined sharply while imports were higher, according to statistics released by the Department of Commerce. Scrap rubber exports in March declined by 2,551,339 pounds to 1,134,170 pounds valued at $53,729, from February's 3,685,509 pounds worth $111,764. The decline reflected the drop in shipments to such traditional large buyers as Spain, West Germany and Japan.

(Prices Delivered Akron)

Mixed tires	ton	15.00
Light colored carcass	lb.	.05½
No. 1 peelings	ton	45.00
No. 2 peelings	ton	30.00
No. 3 peelings	ton	24.00
Buffings	ton	17.00
Truck and Bus S.A.G.	ton	17.00
Passenger S.A.G.	ton	15.00
Natural Rubber Red Tubes	lb.	.07½
Natural Rubber Black Tubes	lb.	.05¾
Butyl Rubber Tubes	lb.	.07¼

Tire Fabrics

Total production of tire cord and fabric in the first quarter of 1955 was 127,000,000 pounds, 9% above the preceding quarter and 23% above last year's quarterly average of 103,000,000 pounds, the Textile Economics Bureau reports. Rayon tire fabric production reached a peak of 96,000,000 pounds in the second quarter of 1953, then began dropping until a low of 50,000,000 pounds was reached in the third quarter of 1954.

Subsequently, an upward trend began, reaching 79,000,000 pounds in the first quarter of 1955. On the other hand, rayon tire cord production remained comparatively steady during 1953, with 20,000,000 pounds being the highest quarterly production. A downswing began in the first quarter of 1954, reaching a low of 13,000,000 pounds in the third quarter of that year. Production in the first quarter of 1955 returned to equal the previous high of 20,000,000 pounds.

The Textile Economic Bureau states that chafer fabric output totaled 13,000,000 pounds in the January-March period of this year, the same as was reported in the corresponding period of the previous year.

Coated Nylon Tarpaulins

A leading industry figure recently predicted that coated nylon tarpaulin will replace standard cotton canvas tarpaulin in the next five years as completely as nylon stockings superseded silk hose. It is estimated that 60,000,000 pounds of cotton tarpaulin a year are now being sold. Only about 20,000,000 pounds of nylon tarpaulin a year will be required to do the same job, the industry figure declared.

Nylon tarpaulin weighs only about one-third to one-half as much as cotton canvas tarpaulin. It is expected that the annual sales volume of nylon tarpaulin will reach $50,000,000 by 1960. It is to be noted that the average initial cost of nylon tarpaulin is about 50% greater than that paid for canvas products.

New Plant in Operation

Hercules Powder Co. recently announced the start of operations at its new $4,000,000 plant at Burlington, N. J., for the production of dimethyl terephthalate, the basic raw material for polyester fiber. It is said that the plant will supply 1,000,000 pounds a month to the new Chemical Industries (1954) Ltd. unit at Millhaven, Ont., Canada, for the production of Terylene. It will also supply the raw material to the licencees of Imperial Chemical Industries, Ltd., in France, Italy, West Germany and the Netherlands for their production of polyester fibers.

(Prices f.o.b. Shipping Point)

Rayon Tire Cord

1100	lb.	.76½
1650	lb.	.73½
2200	lb.	.73

Nylon Tire Cord

210	lb.	2.00
840	lb.	2.00

Rayon Graded Fabric

1100	lb.	.72
1650	lb.	.69½
2200	lb.	.68½

Cotton Chafers

14.4 oz. (per square yard)	lb.	.70
9.25 oz. (per square yard)	lb.	.65
11.65 oz. (per square yard)	lb.	.61
8.9 oz. (per square yard)	lb.	.67

Liquid Latex

Natural: With consumption of Concentrated Hevea latex reduced by vacations and unexpected high prices, the supply and demand situation is now nearer in balance, Latex & Rubber, Inc., states. There will now be an opportunity for stocks to build up for the heavier consumption periods ahead.

During June and through July, prices for ASTM Centrifuged Concentrated latex steadily increased. Tank car quantities, f.o.b. rail tank cars, East Coast "spot" and/or "nearby" prices were quoted between 41 and 54.5c, while forward deliveries ranged from 40 to 50c per pound total solids.

Consumption has been continuing at a high level. In the first five months of this year, consumption averaged about 7,500 tons a month. Regular industry studies, recently completed, show that the July/December, 1955, consumption average will be about 7,300 tons a month.

Synthetic: United States prices for GR-S type latices currently range from 26 to 32.3c per pound total dry solids in rail tank cars, f.o.b. producing plant. Prices of these latices do not fluctuate daily as do prices for Hevea latices. Rather, it would appear that published prices will be more or less firm for three to six-month periods. It is likely that present prices will be reviewed and perhaps adjusted with the coming of the new year.

It is estimated that in June of this year, 5,000 long tons of GR-S type latices were produced and equal tonnage consumed. It is also estimated that in the same month, 900 long tons of neoprene latex were produced and 800 long tons consumed. Prices for neoprene latices range from 37 to 47c per pound dry solids in tank cars, f.o.b. Louisville, Ky.

Cotton

The price of middling uplands on the New York Cotton Exchange has moved in the rather narrow range of 55 points since our last report (July 7), high for the period being 34.75c reached on July 8, and low being 34.20c reached on July 21. The average price of middling uplands for the month of July was 34.60c based on 20 trading days. This compares with an average of 34.83c in June.

A new contract for the future delivery of cotton was put into effect on June 1, 1955, by a vote of the membership of the New York Cotton Exchange. The new contract begins with deliveries in October, 1956, and thereafter. The salient features of the new plan are:

(1) A staple basis of 1-inch; (2) Elimination of 7/8-inch staple cotton on deliveries, which will make the minimum deliverable staple 29/32-inch; (3) full staple premium for 1-1/32-inch cotton and, on the delivery of 1-1/16-inch cotton and longer, the full staple premium for 1-1/32-inch plus 75% of the difference between 1-1/16-inch and 1-1/32-inch, and (4) A micronaire test reading of not less than 3.5. These important changes are expected to offer a more equitable hedging instrument to the trade.

The Textile Economics Bureau estimates that in the first five months of the current year, consumption of cotton by U. S. mills has aggregated 3,829,700 bales in comparison with 3,643,000 bales in the comparable 1954 period, an increase of 186,300 bales, or 5%.

Now . . . Up-To-The-Minute

INTERNATIONAL TECHNICAL ASSISTANCE

- To tire and other rubber manufacturers abroad who desire to learn the latest American "Know-How" . . . cut manufacturing costs — we offer comprehensive Technical Assistance at low cost.
- Dayton Rubber's I.T.A. plan has been in existence for 20 years. Rubber experts and teachers who give unexcelled technical assistance at a surprisingly nominal cost . . . all backed by 50 years of recognized leadership in the rubber industry . . . with 4 U. S. plants.
- We train your personnel in these modern plants . . . help you establish the latest formulae for processing natural and all new types of synthetic rubbers and textiles . . . latest "Know-How" in Tubeless Tires, Butyl Tubes, Rayon and Nylon Cords, Carbon Blacks. We also design factories and supervise machinery installations if desired. Write: International Technical Assistance Division, Dayton Rubber Co., Dayton 1, Ohio.

CABLE ADDRESS: THOROBRED

I.T.A.

GOLDEN JUBILEE

Dayton Rubber 50 YEARS OF PROGRESS

Exclusive Agents for
RCMA RAY-BRAND CENTRIFUGED LATEX

RUBBER CORPORATION OF AMERICA

Suppliers of:

- **GR-S Latex Concentrate**
- **Latex Compounds**
- **Synthetic Emulsions**
- **Plastisols**

Consult our fully equipped laboratory for the answer to your problem.

Write today to:

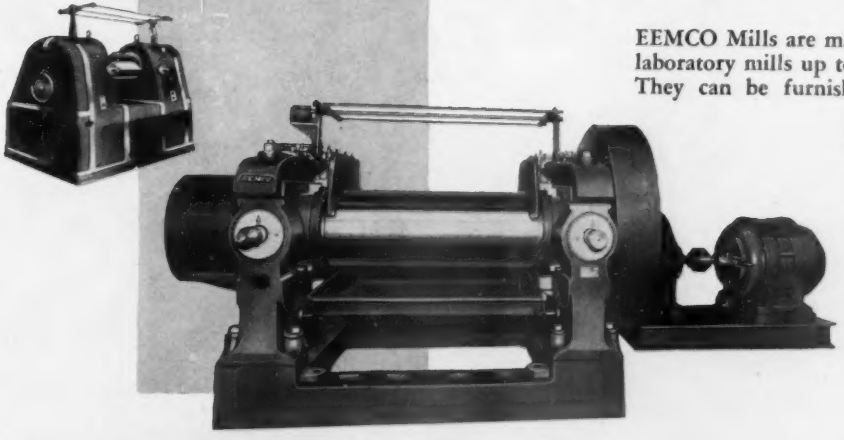
SERVING AMERICAN INDUSTRY FOR A QUARTER CENTURY

RUBBER CORPORATION OF AMERICA
New South Road, Hicksville, N. Y.
Sales Offices:
New York, Akron, Chicago, Boston

available in a complete range of sizes

EEMCO RUBBER and PLASTICS MILLS

are engineered for your job in STANDARD or CUSTOM units



EEMCO Mills are made in standard sizes from laboratory mills up to and including 84" mills. They can be furnished with any extras you desire, including individual drives, right angle or floor level drives, or for "in line operation."

Consult EEMCO before you buy; call or write us today stating your requirements.

EEMCO **ERIE ENGINE & MFG. CO.**
12th STREET and EAST AVENUE • ERIE, PA.

MILLS • PRESSES • LOADERS • LIFT TABLES • PLATENS • PREFORM MACHINES • ROVING CUTTERS

CURRENT MARKET PRICES

of rubber chemicals and compounding ingredients

AUGUST 5, 1955

Prices are, in general, f.o.b. works and cover the domestic markets only. Export prices, as a rule, are usually slightly higher, due to packing regulations, special handling, etc.

Abbreviations: bbls., barrels; c.l., carload; cyl., cylinder; dlvd., delivered; dms., drums; eqld., equalized; l.c.l., less than carload; M.B. masterbatch; min., minimum; ref., refined; sap., saponified; sp., special; syn., synthetic; t.c., tank cars.

***Trademark. †For Export Only.**

The arrangement of this section closely follows the Chemical Section of the 1953-54 RUBBER RED BOOK. Readers are referred to that edition for the correct classification of any material or brand name. Suppliers of every material are contacted for price information. However, only those materials are listed for which quotations have been furnished within the past six months. The quotations are not guaranteed and prospective purchasers should contact suppliers for information. Suppliers are requested to send current price information to the Market Editor, RUBBER AGE.

ACCELERATORS

A-1 (Thiocarbanilide)*	lb.	.50	.57
A-32*	lb.	.66	.80
A-100*	lb.	.52	.66
Accelerator No. 8*	lb.	——	1.10
Accelerator—49*	lb.	.55	.56
Accelerator 108*	lb.	——	.90
Accelerator—552*	lb.	——	2.25
Accelerator—808*	lb.	.66	.68
Accelerator—833*	lb.	1.17	1.19
Accelerator B*	lb.	——	.89
Altax*	lb.	.50	.52
Ancap*(†)	lb.	.38	.40
Ancatax*(†)	lb.	.48	.50
Ancazate BU (ET & ME)*(†)	lb.	——	1.04
Ancazide ET*(†)	lb.	——	1.04
ME*(†)	lb.	——	1.14
Arazate*	lb.	——	2.25
Beutene*	lb.	.66	.68
Bismate, Rodform*	lb.	——	3.00
Butazate*	lb.	——	1.04
Butyl Accelerator 21*	lb.	——	.90
Butyl Eight*	lb.	1.10	1.35
Captax*	lb.	.40	.42
C-P-B*	lb.	——	1.95
Cumate, Rodform*	lb.	——	1.45
Dibenzo G-M-F*	lb.	——	2.60
Diorthotolylguanidine	lb.	.60	.61
Diphenylguanidine	lb.	.50	.51
El-Sixty*	lb.	.58	.65
Ethazate*	lb.	——	1.04
50D*	lb.	——	.85
Ethyl Thiurad*	lb.	——	1.04
Ethyl Tuex*	lb.	——	1.04
Ethylac*	lb.	.93	.95
G-M-F*	lb.	——	2.60
Guantal*	lb.	.58	.65
Harvex*	lb.	.62	.68
Hepteen Base*	lb.	——	1.85
Kure-Blend MT*	lb.	——	.70
Ledate, Rodform*	lb.	——	1.04
MBT-XXX*	lb.	.51	.53
Merac*	gal.	.75	1.05
Mercaptobenzothiazole	lb.	.40	.42
Mercaptobenzothiazyl Disulfide	lb.	.48	.50
Mertax*	lb.	.51	.58
Methazate*	lb.	——	1.04
Monex*	lb.	——	1.14
Mono Thiurad*	lb.	——	1.14
Morfex*	lb.	.65	.67
2-MT	lb.	——	1.00
NA-22* (for neoprene)	lb.	——	1.20
NOBS No. 1*	lb.	.72	.74
Special*	lb.	.77	.79
O-X-A-F	lb.	.51	.53
Pentex*	lb.	——	1.04
Flour*	lb.	——	.21
Phenex*	lb.	.52	.57
Polyac*	lb.	——	1.80
R-2 Crystals*	lb.	——	4.35
Rotax*	lb.	.51	.53
RZ-50-A*	lb.	——	1.00
B*	lb.	——	1.00
SA 52*	lb.	——	1.14
SA 57*	lb.	——	1.04
SA 62*	lb.	——	1.04
SA 66*	lb.	——	2.75
SA 67*	lb.	——	1.04
SA 77*	lb.	——	1.04
Santocure*	lb.	.72	.79
Selenac* (Ethyl, Methyl)	lb.	——	2.75
Setsit-5*	lb.	.75	1.05
9*	lb.	.85	1.15
SPDX-GH*	lb.	.69	.71
GL*	lb.	1.20	1.30
Tellurac*	lb.	——	1.45
Tepidone*	lb.	.45	.48
Tetrone A*	lb.	——	1.91
Thiofide*	lb.	.50	.57
S*	lb.	.52	.59
Thionex*	lb.	——	1.14
Thiotax*	lb.	.40	.47
Thiurad*	lb.	——	1.14
Thiuram E*	lb.	——	1.04
M*	lb.	——	1.14
Trimene*	lb.	.56	.58
Base*	lb.	1.03	1.06
Tuads* (Ethyl)	lb.	——	1.04
Tuads* (Methyl)	lb.	——	1.14
Tuex*	lb.	——	1.14
Ultex*	lb.	1.00	1.10
Unads*	lb.	——	1.14
Vulcacure NB*	lb.	——	.45
ZB*	lb.	——	.85
ZE*	lb.	——	.85
ZM*	lb.	——	.85
Z-B-X*	lb.	——	2.45
Zenite*	lb.	.50	.52
A*	lb.	.59	.61
Zenite Special*	lb.	.51	.53
Zetax* (uncoated)	lb.	.51	.53
Zimate* (Butyl)	lb.	——	1.04
Zimate* (Ethyl)	lb.	——	1.04
Zimate* (Methyl)	lb.	——	1.04

ACTIVATORS

Blue Lead Sublimed (dlvd.)	lb.	.15¾	.16¾
Cottonseed Fatty Acids			
Wochem 210*	lb.	.15¼	.17¼
211*	lb.	.15¼	.17¼
Fish Oil, Hydrogenated, Fatty Acid			
DAR-S* (dlvd.)	lb.	.12	.14
DAR-HY* (dlvd.)	lb.	.13¾	.15¾
Hydrofol Acids* (dlvd.)	lb.	.12	.18¼
Hyfac 430* (dlvd.)	lb.	.16¼	.18¼
Neo-Fat H.F.O.* (dlvd.)	lb.	.14½	.15¾
Neutrax* (dlvd.)	lb.	.15	.17
Stearex Beads* (dlvd.)	lb.	.09¾	.10¾
Stearite*	lb.	.12	.14
Talene* (dlvd.)	lb.	.14¾	.16¾
Lime, Hydrated			
Arrowhead*	ton	——	20.50
Marblehead*	ton	——	16.50
Sierra*	ton	——	22.00
Litharge			
Eagle-Picher*	lb.	——	.17
SB* (dlvd.)	lb.	——	.15
Magnesium Oxide, Heavy			
General Magnesite 500*	lb.	.05	.05½
600*	lb.	.06	.07
Michigan No. 15*	lb.	.06	.06½
Permanente MgO*	lb.	.057	.073
Magnesium Oxide, Light			
Baker's* (neoprene grade)	lb.	——	.26
Carey Mag*	lb.	.25¼	.26
General Magnesite* (neoprene grade)	lb.	.29¼	.30
General Magnesite No. 101*	lb.	.25¼	.28

ACTIVATORS (Cont'd)

Magnesium Oxide, Light (cont'd)			
Genmag ML*	lb.	.25¼	.28
195*	lb.	——	.20½
K & M*(neoprene grade)	lb.	.30	.34
Light Calcined Magnesia No. X-01*	lb.	.25¼	.26
Light Carbonate of Magnesia, Technical	lb.	.10½	.12
Maglite D*	lb.	.25¼	.26
M*	lb.	.29¼	.30
Marine's* (neoprene grade) (l.c.l.)	lb.	.29¼	.30
Michigan No. 30*	lb.	——	.26
Neomag Powder*	lb.	.29¼	.30
Pellets*	lb.	.31¼	.32
No. 40 Extra Light*	lb.	——	.30
Oleic Acid			
Emersol 210* (dlvd.)	lb.	.18	.20
L.C.P. Red Oil*	lb.	.18	.20
Neo-Fat 92-04*	lb.	.18	.19¾
94-04*	lb.	.15½	.17½
Palm Fatty Acids			
Wochem 280*	lb.	.14¼	.16¼
281*	lb.	.14¾	.16¾
Potassium Oleate (dms.)	lb.	.30	.73
Red Lead			
Eagle-Picher*	lb.	——	.18
No. 2 RM* (dlvd.)	lb.	——	.17
Sodium Laurate, 75%	lb.	.64	.89
Sodium Oleate, 75%	lb.	.54	.79
Paste (dms.)	lb.	.39	.64
Sodium Stearate, 75%	lb.	.54	.89
Stearic Acid, Single Pressed			
Emersol 110* (dlvd.)	lb.	.14¼	.16¼
Groco 53*	lb.	.14¼	.16¼
Neo-Fat 18-53*	lb.	.13¾	.14¾
Standard Pearlstearic* (dlvd.)	lb.	.14¼	.16¼
Wochem 730*	lb.	.12	.14
Stearex B* (dlvd.)	lb.	.15½	.16¾
Stearic Acid, Double Pressed			
Choice Pearlstearic* (dlvd.)	lb.	.14¾	.16¾
Emersol 120* (dlvd.)	lb.	.14¾	.16¾
Groco 54*	lb.	.14¾	.16¾
Neo-Fat 18-54*	lb.	.14¼	.15¼
Wochem 731*	lb.	.13¾	.15¾
Stearic Acid, Other			
Extra Pearlstearic* (dlvd.)	lb.	.17	.19
Neo-Fat 18*	lb.	.17½	.18½
18-58*	lb.	.12	.13
18-61*	lb.	.15¼	.16¼
Wochem 720*	lb.	.11¾	.13¾
721*	lb.	.11½	.13½
732*	lb.	.15½	.17½
White Lead Basic Carbonate	lb.	.17½	.18½
White Lead Basic Sulfate	lb.	.15¾	.16¾
Zinc Laurate			
Laurex*	lb.	.33	.34
Zinc Stearate	lb.	.37	.42
Aquazinc*	lb.	.20	.45
Aquazinc K.C.*	lb.	.30	.55

Unclassified Activators

Actifat* (dms.)	lb.	——	.18
Aktone*	lb.	——	.25
Barak*	lb.	——	.62
Curade*	lb.	.57	.59
D-B-A*	lb.	——	1.95
Dibutylamine (dlvd.)	lb.	.55	.56
MODX*	lb.	.32½	.34½
Ridacto* (dms.)	lb.	.25	.26
Snodotte* (dlvd.)	lb.	.18½	.20½
Vulklor*	lb.	.88	.98

ANTI-COAGULANTS

Aqua Ammonia* (dms.)	lb.	.031	.035
M.B.M.* (l.c.l.)	lb.	——	.35

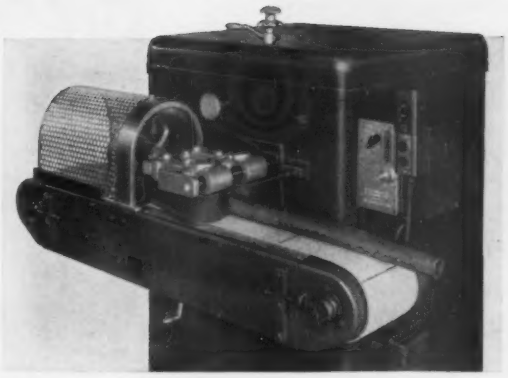
ANTI-FOAMING AGENTS

Aero Anti Foam H*	lb.	——	.20
Regular*	lb.	——	.12
D.C. Antifoam A*	lb.	5.45	6.65
Antifoam A Emulsion*	lb.	2.05	4.00
Antifoam AF Emulsion*	lb.	2.05	2.85
Defoama W-1701*	lb.	——	.12½
Defoamer A-25*	lb.	——	3.00
Defoamer 630*	lb.	——	.12½
Deltyl Prime	lb.	.70	.80

CROWN CLAY

SOUTHEASTERN CLAY CO.
AIKEN, SOUTH CAROLINA

Sales Agents
HERRON BROS. & MEYER.....Akron
HERRON BROS. & MEYER.....New York
C. M. BALDWIN.....Chicago
ERNEST JACOBY & CO.....Boston
The C. P. HALL CO. of Calif. .....Los Angeles
The PIGMENT & CHEMICAL CO. Ltd. ..Toronto



Let **WINK** Automate Your Molding Preparation and Cut Costs Radically

WINK cuts any extruded material, speeds being controlled automatically to equal extruding speeds; 3000 pieces per minute are possible. Right off the belt, WINK cuts lengths of 100 feet and more from 3" dia. down to thin 1/16" slices on 1/2" dia. stock; *no distortion or collapse.* Set-up time negligible; short runs practical. Waste reduced up to 90%.

Write on your letterhead for Bulletin "A-7".

FINK
F. J. FINK & CO.
2348 EUCLID AVE. • CLEVELAND 15, OHIO • MAin 1-0535
★ SPECIAL MACHINERY ★

Factice
THE STAMFORD RUBBER SUPPLY CO.
Vulcanized Oil

THE STAMFORD RUBBER SUPPLY CO.

"FACTICE"®
A *Complete* LINE OF
WHITE
BROWN
and AMBER
GRADES

OLDEST AND LARGEST MANUFACTURERS OF "FACTICE" BRAND VULCANIZED OIL SINCE 1900

LEADERS IN THE FIELD
For
RESEARCH and
MANUFACTURING
DEPENDABILITY

THE STAMFORD RUBBER SUPPLY COMPANY, STAMFORD, CONN.

ANTI-FOAMING AGENTS (Cont'd)

Emcol IM*	lb.	——	.60
G-E Antifoam SS-24*	lb.	5.80	6.90
SS-66*	lb.	5.70	6.20
Kessco X-3* (dms.)	lb.	——	.35½
X-180*	lb.	——	.29¾
X-181*	lb.	——	.38½
Nopco 1407*	lb.	.19½	.20½
1497-V*	lb.	.13¼	.14¼
1907-B*	lb.	.18¼	.19¼
JMK*	lb.	.48	.49
JMU*	lb.	.22½	.23½
JMY*	lb.	.19¼	.20¼
Pluronic L61*	lb.	.33½	.39
RS-968*	lb.	.38	.38½
Terpinol Prime No. 1	lb.	.35	.50
Tributyl Phosphate (dms.)	lb.	.52	.53

ANTIOXIDANTS

Agebest 1293-22A*	lb.	1.90	2.00
AgeRite Alba*	lb.	2.35	2.45
Gel*	lb.	.64	.66
Hipar*	lb.	.98	1.00
H.P.*	lb.	.72	.74
Powder*	lb.	.52	.54
Resin*	lb.	.75	.77
Resin D*	lb.	.52	.54
Spar*	lb.	.52	.54
Stalite*	lb.	.52	.54
Stalite S*	lb.	.52	.54
White*	lb.	1.45	1.55
Akroflex C*	lb.	.77	.79
CD*	lb.	.72	.74
Aminox*	lb.	.52	.54
Antioxidant 425*	lb.	2.47	2.50
Antioxidant 2246*	lb.	1.50	1.53
Antox*	lb.	.52	.54
Aranox*	lb.	——	3.25
Benzoquinone	lb.	1.50	1.75
Betanox Special*	lb.	.80	.82
B-L-E*	lb.	.52	.54
B-X-A*	lb.	.52	.54
Deenax*	lb.	.95	1.05
Di-tert-Butyl-para-Cresol	lb.	.91	.95
Eugenol C-95%*	lb.	2.30	2.50
Flectol H*	lb.	.52	.59
Flexamine*	lb.	.72	.74
Neozone A*	lb.	.56	.58
C*	lb.	——	.80
D*	lb.	.52	.54
Octamine*	lb.	.52	.54
Oxidex*	lb.	——	3.60
PDA-10*	lb.	.46	.48
Permalux*	lb.	——	2.17
Polygard*	lb.	.52	.54
Santoflex AW*	lb.	.78	.85
B*	lb.	.52	.59
BX*	lb.	.63	.70
DD*	lb.	.52	.59
35*	lb.	.72	.79
75*	lb.	.92	.99
Santovar-A*	lb.	1.50	1.57
Santowhite Crystals*	lb.	1.60	1.67
Santowhite L*	lb.	.52	.59
MK*	lb.	1.29	1.36
Powder*	lb.	1.60	1.67
Sequestrene AA*	lb.	——	.97½
NA2*	lb.	——	.79½
NA3*	lb.	——	.77½
Stabilite*	lb.	.55	.57
Alba*	lb.	.72	.77
FLX*	lb.	——	.65
L*	lb.	.60	.62
White*	lb.	.52	.54
White Powder*	lb.	.41	.43
Stabilizer No. 1*	lb.	1.55	1.80
Stabilizer No. 9-A*	lb.	.80	1.05
Styphen I*	lb.	.51	.55
Sunolite*	lb.	.21	.23
Tannic Acid, Tech.	lb.	.46	.48
Thermoflex A*	lb.	.98	1.00
V-G-B*	lb.	.70	.72
Wing-Stay S*	lb.	.51	.52

ANTI-SCORCHING AGENTS

Armeen HT*	lb.	.31	.33
Good-rite Vultrol*	lb.	.62	.64
Harcopol 1183*	lb.	.70	.74
Sodium Acetate 60-62% Crystals	lb.	.08	.08½

ANTISEPTICS AND GERMICIDES

Arquad S*	lb.	.24	.26
Formaldehyde (dms.)	lb.	.052	.068
G-4* (bbls.)	lb.	1.04	1.19
G-11*	lb.	2.20	2.30
Halane*	lb.	.50	.60
Nuodex 100 S.S.* (dlvd.)	lb.	——	1.10
100 W.D.* (dlvd.)	lb.	——	1.25
Zinc 8%* (dms.) (dlvd.)	lb.	.24	.28
Ortho Cresol (26°—27°)	lb.	.14	.156
Retarder D*	lb.	.42	.50
Soligen Drier—Copper 8%* (dms.)	lb.	.20¼	.21½
Zinc 8%* (dms.)	lb.	.22¼	.23½
Vancide*	lb.	——	.80

ANTI-WEBBING AGENTS (for Latex)

DC 7 Compound*	lb.	5.13	6.50
Webnix 34*	lb.	1.50	2.25

AROMATICS (DEODORANTS)

Airkem 115*	gal.	——	6.50
122*	gal.	——	6.50
186*	gal.	——	6.50
Alamask AA*	lb.	——	3.00
AF*	lb.	——	2.50
AO*	lb.	——	1.50
AR*	lb.	——	.50
BG*	lb.	——	1.15
BGM*	lb.	——	.60
CY*	lb.	——	2.40
DI*	lb.	——	3.35
DL*	lb.	——	1.95
H*	lb.	——	5.50
LD*	lb.	——	.75
ND*	lb.	——	2.75
O*	lb.	——	6.50
OS*	lb.	——	5.25
Bouquet 149*	lb.	——	3.00
Coumarin*	lb.	2.95	3.00
Curodex 19*	lb.	4.75	4.90
188*	lb.	5.75	5.90
198*	lb.	6.75	6.90
Deodorant 65*	lb.	——	1.85
Deodorant L-37*	lb.	2.00	2.40
L-44*	lb.	2.50	2.90
N.L.T.X.*	lb.	1.85	2.15
Deodorant Oil GD 3427*	lb.	1.70	2.00
GD 6422*	lb.	2.00	2.50
GD 6423*	lb.	1.60	1.90
GD 6575*	lb.	2.40	2.90
GD 31063*	lb.	2.25	2.75
Ethavan*	lb.	6.75	6.80
Latex Perfume 5*	lb.	——	3.25
6*	lb.	——	7.50
9*	lb.	——	1.25
Naugaromes* (dms.)	lb.	.60	3.00
Neutroleum Delta*	lb.	——	2.60
Gamma*	lb.	——	3.60
Parador A*	lb.	2.00	2.50
C*	lb.	2.75	3.25
E*	lb.	.25	.55
GD 5280*	lb.	2.00	2.50
GD 5348*	lb.	1.90	3.25
Perfume Oil Bouquet Vanilla M*	lb.	2.40	2.75
Rodo No. 0*	lb.	4.00	4.50
No. 10*	lb.	5.00	5.50
Rubbarome* (dms.)	lb.	.60	3.80
Rubber Perfume 12*	lb.	——	4.35
Russian Leather 7*	lb.	——	4.35
Vanillin	lb.	3.00	3.25

BLOWING AGENTS

Ammonium Bicarbonate	cwt.	——	8.00
Better Blend Soda* (c.l., bags)	cwt.	——	2.40
Blowing Agent CP-975*	lb.	.32	.35
Celogen*	lb.	——	1.95
AZ*	lb.	——	1.95
Sodium Bicarbonate, U.S.P. (c.l., bags)	cwt.	——	2.30
Sponge Paste*	lb.	——	.20
Unicel*	lb.	——	.90
ND*	lb.	——	.76
S*	lb.	——	.20
Urea	lb.	.04¼	.04¾

BONDING AGENTS

Braze*	gal.	6.00	9.00
Cover Cement*	gal.	2.80	4.00
Durez 12987*	lb.	——	.54
Gen-Tac Latex*	lb.	.75	.85½
Hylene M*	lb.	3.50	3.75
M-50*	lb.	1.90	2.15
Penacolite B1A*	lb.	——	.95
R-2710*	lb.	——	.95
Pliobond 20*	gal.	2.91	4.23
30*	gal.	3.65	4.97
Rex Compounds*	gal.	1.30	1.90
Thixons*	gal.	3.30	9.00
Ty-Ply Q (BN & S)*	gal.	6.75	8.00
Tygobond 30*	gal.	5.50	7.45

COAGULANTS

Acetic Acid—56% (bbls.)	cwt.	9.00	11.00
Glacial 99¼% (dms.)	lb.	.12	.13
Calcium Nitrate, Tech. Crystals	lb.	.12½	.15
Hydroxyacetic Acid—70% (dms.)	lb.	——	.084
Zinc Nitrate, Tech.	lb.	——	.22½

COLORING AGENTS

Black

Aquablak B*	lb.	.09¼	.09¾
M*	lb.	.08½	.09
R*	lb.	.10¾	.11¼
S*	lb.	.11½	.12
Black Shield 4-35* (dms.)	lb.	——	.09
Carbon Black See *Reinforcing Agents*			
Lampblack No. 10*	lb.	.06	.09
Mapico Black Iron Oxide* (50 lb. bags)	lb.	.13¼	.13½
Pure Black Iron Oxide	cwt.	12.75	13.00

COLORING AGENTS (Cont'd)

Blue

Blue Powders	lb.	2.30	5.00
Cooke M.B. Blue*	lb.	2.45	2.85
Milori Blue*	lb.	——	.46
Monastral Rubber Blue CPL*	lb.	——	1.95
PCD, Dispersed*	lb.	——	2.20
Peacoline Blue*	lb.	——	3.85
Ramapo Blue*	lb.	——	3.00
Rubber Blue GD* (Disp.)	lb.	——	4.55
Rubber Blue X-1999*	lb.	——	1.70
Rubber Dispersed Blues	lb.	2.52	2.78
Syntheline Blue*	lb.	——	3.85
Stan-Tone MBS*	lb.	1.55	4.55
GPE*	lb.	——	2.50
PC*	lb.	——	2.40
PDS*	lb.	——	2.00
PVC*	lb.	——	2.50
Ultramarine	lb.	.14	.30
Vansul Blue M.B.*	lb.	.90	2.60

Brown

Brown Iron Oxide	lb.	.12¾	.13
Mapico Brown* (50 lb. bags)	lb.	.14¼	.14½
Stan-Tone GPE*	lb.	——	3.00
Vansul Brown M.B.* (Organic)	lb.	——	2.10

Green

Cooke M.B. Green*	lb.	1.45	2.80
Filo Green*	lb.	——	.34
Green Chromium Oxide, Pure	lb.	——	.39¾
Green Chromium Oxide, Pure Hydrated	lb.	——	1.10
Green Powders	lb.	1.35	3.95
Monastral Rubber Green GSD* (Dispersed)	lb.	——	2.80
GSL*	lb.	——	2.20
Permansa Green CP-594*	lb.	——	1.35
Pigment Green B*	lb.	——	1.35
GL-652D*	lb.	.80	.90
Ramapo Green*	lb.	——	3.50
Rubber Dispersed Greens	lb.	1.23	3.08
Rubber Green FD* (Disp.)	lb.	——	2.05
Rubber Green X-1292*	lb.	——	1.40
Stan-Tone MBS*	lb.	1.55	3.35
GPE*	lb.	3.00	4.50
PC*	lb.	——	3.00
PDS*	lb.	1.90	2.20
PVC*	lb.	——	3.60
Vansul Green M.B.*	lb.	1.00	2.90

Maroon

Maroon Powders	lb.	.79	3.60
Stan-Tone MBS*	lb.	——	3.50
Vansul Maroon M.B.*	lb.	——	3.25

Orange

Molybdate Orange	lb.	——	.45
Oswego Orange X2065*	lb.	——	3.00
Rubber Orange OD* (Disp.)	lb.	——	2.25
Stan-Tone GPE*	lb.	——	1.20
PC*	lb.	——	1.05
PDS*	lb.	——	1.20
PVC*	lb.	——	1.25
Vansul Orange M.B.*	lb.	2.00	2.50

Red

Antimony Trisulfide	lb.	.72	.78
R.M.P. Sulfur Free*	lb.	——	.78
R.M.P. No. 3*	lb.	——	.72
Cadmolith Red* (bbls.)	lb.	1.79	2.45
Cooke M.B. Red*	lb.	1.00	3.15
Graphic Red (dlvd.)	lb.	——	.79
Indian Red, American, Pure*	lb.	.12¾	.13
Doxco (English)*	lb.	.11½	.11¾
Kroma Reds*	lb.	.13	.15
Mapico Reds* (50 lb. bags)	lb.	.12¾	.13
Oximony Red Iron Oxide	lb.	.12¾	.13
Recco Red Oxide*	lb.	.12	.13
Red Iron Oxide, Light	lb.	.13	.13½
Red Powders	lb.	——	4.40
Rubber Dispersed Reds	lb.	1.47	3.58
Rubber Red PBD* (Disp.)	lb.	——	1.75
2BD, Dispersed*	lb.	——	1.80
2BL*	lb.	——	1.65
PBL*	lb.	——	1.65
Rubanox Red CP-762* (dlvd.)	lb.	——	1.40
Rubber Red CP-339* (dlvd.)	lb.	——	1.10
Rubber Red X-1148*	lb.	——	.85
Solfast Red*	lb.	1.50	1.95
Stan-Tone MBS*	lb.	1.20	3.53
GPE*	lb.	1.65	2.00
PC*	lb.	1.30	2.50
PDS*	lb.	1.40	1.55
PVC*	lb.	1.65	1.90
Sun Burnt Red*	lb.	.11½	.11¾
Vansul Red M.B.*	lb.	1.20	3.20
Watchung Red*	lb.	1.63	1.95

Designed for the processing of
TEXTILES · RUBBER · PLASTICS
PAPER · TILE and many Other Products

J.E. CARROLL & CO.
100 CAMBRIDGE STREET, LOWELL, MASSACHUSETTS

YOU MAKE
THEM
WE ROAD TEST
THEM

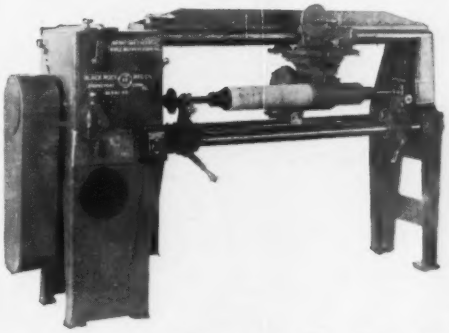
on the most natural
Proving Grounds in America

This independent test fleet is located in Devine, Texas, some thirty-two miles southwest of San Antonio on U S Hiway 81. Sponsors have a choice of three routes from which to choose. Test procedures are flexible. Tire rotation, cycle miles, number and frequency of reports or routing, can be a basis for discussion if the sponsor so desires. We endeavor to operate to the best advantage of the sponsor. Because we are wholly independent of any organization, all information collected is responsible to the sponsor only.

Tires of all specifications tested—both passenger car and truck.
Your inquiries will receive prompt attention.

SOUTH TEXAS TIRE TEST FLEET
Phone 301 DEVINE, TEXAS P. O. Box 95
A. J. (AL) Morrow, Owner-Manager

A Dual Purpose Machine
For Grinding and Polishing



RUBBER ROLLER AND TUBE
GRINDING & POLISHING
MACHINE (4-LM)

Wide and flexible range of speeds and feeds insure profitable production grinding and polishing of tubes and medium size rollers.

FINE BR TOOLS
BLACK ROCK MFG. CO.
179 Osborne Street Bridgeport 5, Conn.

SERVICE YOU CAN TRUST!

PLANDEX Reclaiming
Makes Your Plastics Scrap
More Valuable!

√ Precision processing and laboratory control guard both QUANTITY and QUALITY

- SORTING, GRINDING
- COMPOUNDING
- BLENDING, COLORING
- STRAINING
- PELLETIZING
- MASTER BATCHING

The Plandex plant is custom-designed for the ultimate in production efficiency and economy. Fast, accurate, dependable service is our only product. Customers throughout U.S.A. and Canada.

It's our job to help you solve your plastics scrap problems. Write for catalog No. 155 today:

PLANDEX CORPORATION
Chestnut Street
DOWNINGTOWN, PA.

COLORING AGENTS (Cont'd)

Tan

Mapico Tan 15* (50 lb. bags)	lb.	.20¾	- .21
20* (50 lb. bags)	lb.	.20¼	- .20½

White—Lithopone

Albalith*	lb.	.0750	- .0850
Eagle-Picher*	lb.	.0750	- .0825
Permolith*	lb.	.0750	- .0825
Sunolith*	lb.	.0750	- .0825

White—Titanium Pigments

Ti-Cal*	lb.	.08⅜	- .09⅜
R-25*, R-22*, R-27*, R-30*	lb.	.08⅜	- .08⅞
R-60*	lb.	.08⅝	- .09⅜
Ti-Pure*	lb.	.22½	- .25½
Anatase Grades*	lb.	.22½	- .23½
Rutile Grades*	lb.	.24½	- .25½
Titanox A*—all grades (dlvd.)	lb.	.22½	- .23½
C-50* (dlvd)	lb.	.12⅞	- .13⅜
RA* (dlvd.)	lb.	.24½	- .25½
RA-10* (dlvd.)	lb.	.24½	- .25½
RA-NC* (dlvd.)	lb.	.24½	- .25½
RC* (dlvd.)	lb.	.08⅝	- .09⅜
RC-HT* (dlvd.)	lb.	.08⅜	- .08⅞
Unitane O-110*	lb.	.22½	- .23½
O-210*	lb.	.22½	- .23½
O-220*	lb.	.22½	- .23½
O-310*	lb.	.22½	- .23½
O-320*	lb.	.22½	- .23½
O-410*	lb.	.22½	- .23½
OR-150*	lb.	.24½	- .25½
OR-250*	lb.	.24½	- .25½
OR-340*	lb.	.24½	- .25½
OR-342*	lb.	.24½	- .25½
OR-350*	lb.	.24½	- .25½
OR-540*	lb.	.24½	- .25½
OR-640*	lb.	.24½	- .25½
Zopaque*	lb.	.22½	- .23½
R*	lb.	.24½	- .25½

White—Zinc Oxide (American Process)

AZO-ZZZ 11* (22*, 33*, 44*, 55* & 66*)	lb.	.1400	- .1500
Eagle-Picher AAA*	lb.	.1400	- .1500
Horse Head Special*	lb.	.1350	- .1450
XX*	lb.	.1350	- .1450
Protox 166*	lb.	.1350	- .1450
167*	lb.	.1350	- .1450
St. Joe Black Label*	lb.	.1400	- .1500
Green Label*	lb.	.1400	- .1500
Red Label*	lb.	.1400	- .1500

White—Zinc Oxide (Dispersed)

Dispersed Zinc Oxide	lb.	——	- .13

White—Zinc Oxide (French Process)

Florence Green Seal*	lb.	.1575	- .1675
Red Seal*	lb.	.1525	- .1625
White Seal*	lb.	.1625	- .1725
Kadox 25*	lb.	.1625	- .1725
15*, 17* & 72*	lb.	.1400	- .1500
Protox 168*	lb.	.1400	- .1500
169*	lb.	.1400	- .1500
U.S.P. (cartons)	lb.	.1725	- .1825

White—Zinc Sulfide

Cryptone ZS*	lb.	.2530	- .2630

Yellow

Benzidine Yellow	lb.	2.00	- 2.25
Cadmolith Yellow* (bbls.)	lb.	1.12	- 1.20
Chrome Yellow	lb.	——	- .32
Cooke M.B. Yellow 405*	lb.	1.90	- 2.00
Iron Oxide, Pure			
Light Shades	lb.	.11	- .11¼
Dark Shades	lb.	.10½	- .10¾
Mapico Yellow* (50 lb. bags)	lb.	.11	- .11¾
Rubber Dispersed Yellows	lb.	1.27	- 2.13
Rubber Yellow GD* (disp.)	lb.	——	- 2.15
GL*	lb.	——	- 1.68
Rubber Yellow X-1940*	lb.	——	- 2.25
Stan-Tone MBS*	lb.	1.30	- 4.50
GPE*	lb.	2.00	- 4.50
PC*	lb.	.85	- 4.50
PDS*	lb.	1.25	- 1.75
PVC*	lb.	1.30	- 1.85
Sumatra Yellow X-1940*	lb.	——	- 2.25
Toluidine Yellow YL-660 D*	lb.	1.15	- 1.20
Oximony Iron Oxide	lb.	——	- .06¾
Vansul Yellow M.B.*	lb.	.95	- 1.95
Yellow Powders	lb.	2.00	- 5.00
Zinc Yellow	lb.	.26	- .31

DISPERSING AGENTS

Anchoid*(†)	lb.	.24	- .25
Armeen 18*	lb.	.38	- .40
Blancol*	lb.	——	- .15¾
Darvan No. 1* (and No. 2*)	lb.	.22	- .30
Daxad 11* (21*, 23*)	lb.	.08	- .30
Diethanolamine (dms., dlvd.)	lb.	.24½	- .27½
Dispersaid*	lb.	1.25	- 1.35
Emcol K-8300* (dms.)	lb.	.19	- .20
Emulphor ON-870*	lb.	——	- .55
Furala*	lb.	.06½	- .07½
Halloid*	lb.	.04½	- .05½
Igepal CO-630*	lb.	——	- .29
Igepon T-73*	lb.	——	- .29½
Kyro EO* (dms.)	lb.	——	- .29¾
Leonil SA*	lb.	——	- .55
Lomar PW*	lb.	——	- .18
Marasperse C*	lb.	.06¼	- .06¾
CB*	lb.	.12¼	- .13¼
N*	lb.	.09½	- .10½
Monoethanolamine (dms., dlvd.)	lb.	.25	- .27¾
Nekal BA-75*	lb.	——	- .40
BX-76*	lb.	——	- .64
Nopco 1187-X*	lb.	.15	- .16
Pluronic F68*	lb.	.38½	- .44
R & R 551*	lb.	——	- .28
Rubbex*	lb.	.267	- .285
Stablex B*	lb.	.50	- .95
Stan-Chem BQC*	lb.	.12¼	- .17¼
1067*	lb.	——	- .13½
1471*	lb.	.1687	- .2187
2251*	lb.	.12¼	- .17¼
Trenamine D-25*	lb.	.32½	- .36
Triethanolamine (dms., dlvd.)	lb.	.21½	- .24½
U-3051*	lb.	——	- .148
Yelkin TT*	lb.	.13	- .16
TTS*	lb.	.13	- .16

EXTENDERS

Advagum 1098*	lb.	——	- .64
Arcco 1071-13B*	lb.	.14½	- .15½
1073-18B*	lb.	.13½	- .14½
1294-36B*	lb.	.11½	- .12½
Car-Bel-Ex-A* (and B*)	lb.	——	- .14
Extender 600*	lb.	——	- .1765
Millex*	lb.	——	- .07
W*	lb.	——	- .07
Nopco 2271*	lb.	.15½	- .16½
Polyco 418*	lb.	.17	- .18
PR-162 Latex Extender*	lb.	——	- .182
Synprolac*	lb.	.16	- .23
Synprowax*	lb.	——	- .23
Vistanex*	lb.	——	- .45

FILLERS (Inert and Reinforcing)

Abrasives			
Carbonite*	lb.	.20	- 1.33
Lionite*	lb.	.14½	- 1.25
Pumice	lb.	.03	- .05
Walnut Shell Grits	lb.	.05	- .08
Aluminum Hydrate	lb.	.08	- .11
Kaiser Alumina*	lb.	.026	- .059
Aluminum Silicate			
Aluminum Flake*	ton	23.50	- 30.00
Marter White*	ton	18.50	- 30.00
Barium Carbonate (l.c.l.)	ton	95.50	-100.00
Barytes			
No. 1 Floated, White*	ton	41.35	- 60.10
No. 2 Floated, Un-bleached*	ton	39.35	- 58.10
No. 22 Barytes* (c.l.)	ton	——	- 25.00
No. 3805 Barytes*	ton	22.00	- 26.75
Foam A*	ton	——	- 41.35
Sparmite*	ton	75.00	- 80.00
XIOR*	ton	75.00	- 80.00
Bentonite (c.l.)	ton	——	- 13.50
Argosite Clay* (c.l.)	ton	——	- 12.50
Bennett Clay* (c.l.)	ton	——	- 32.50
SPV Volclay* (c.l.)	ton	——	- 12.50
White Hi-Gel*	ton	——	- 65.90
Blanc Fixe	ton	72.50	-120.00
Calcium Carbonate			
Atomite* (c.l.)	ton	——	- 30.00
B.I. White No. 1 (c.l.)	ton	——	- 9.00
Calcene NC*	ton	72.50	- 92.50
TM*	ton	75.00	- 95.00
Calwhite*	ton	——	- 17.00
Camel-Carb*	ton	——	- 10.00
Camel-Tex*	ton	——	- 18.00
Camel-Wite*	ton	——	- 30.00
Duramite*	ton	——	- 15.00
Gamaso*	ton	——	- 30.00
Kalite*	ton	50.00	- 65.00
Keystone White*	ton	——	- 16.00
Laminar*	ton	——	- 30.00
Lesmite* (c.l.)	ton	——	- 27.50
Lorite*	ton	30.00	- 35.00
Millical*	ton	35.00	- 50.00
Multifex*	ton	140.00	-155.00
MM*	ton	110.00	-125.00
Non-Fer-Al*	ton	30.00	- 45.00
Purecal M*	ton	56.75	- 80.75
SC*	ton	110.00	-125.00
T*	ton	110.00	-125.00
U*	ton	120.00	-135.00
Rambo No. 1*	ton	——	- 9.50
Sierracal*	ton	15.00	- 18.50

FILLERS (Cont'd)

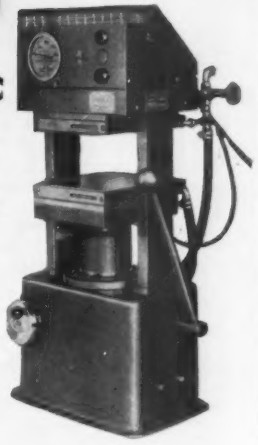
Calcium Carbonate (cont'd)			
Snowflake*	ton	17.00	- 18.00
Super Multifex*	ton	160.00	-175.00
Surfex*	ton	35.00	- 50.00
Suspenso*	ton	33.00	- 48.00
Witcarb Reg.*	ton	56.75	- 85.00
P*	ton	110.00	-140.00
R*	ton	120.00	-150.00
RC*	ton	110.00	-140.00
York White*	ton	——	- 9.50
Calcium Silicate			
Silene EF*	ton	120.00	-140.00
Calcium Sulfate, Anhydrous			
Snow White Filler*	ton	——	- 20.50
Calcium Sulfate Hydrous			
Terra Alba No. 1*	ton	——	- 16.00
Chalk Whiting (l.c.l.)	lb.	.01½	- .01¾
Recco Paris Whiting*	ton	——	- 33.00
OMYA Whiting*	ton	——	- 30.00
Clay			
Afton Clay*	ton	11.00	- 30.00
Aiken Clay*	ton	——	- 14.00
Alsilite* (c.l.)	ton	30.00	- 45.00
Alsite* (c.l.)	ton	——	- 14.00
Aluminum Flake*	ton	23.50	- 30.00
Buca* (c.l.)	ton	——	- 45.00
Burgess No. 20*	ton	——	- 35.00
No. 30*	ton	——	- 37.00
Burges Iceberg*	ton	——	- 50.00
Catalpo* (c.l.)	ton	——	- 35.00
Champion*	ton	——	- 14.00
C.S.D.* (c.l.)	ton	——	- 13.50
Crown*	ton	——	- 14.00
Dixie* (c.l.)	ton	——	- 14.00
Franklin Clay—R* (c.l.)	ton	——	- 13.50
Harwick Clays*	ton	18.50	- 57.00
Hi-White R*	ton	——	- 13.50
Kalloid Clay* (c.l.)	ton	——	- 10.50
LGB*	ton	——	- 17.00
LGP*	ton	——	- 19.00
McNamee* (c.l.)	ton	——	- 13.50
Paragon*	ton	——	- 13.50
Pigment 5*	ton	23.50	- 26.50
33*	ton	——	- 37.00
Recco* (c.l.)	ton	——	- 14.00
Swanee Clay*	ton	——	- 12.50
Snobrite*	ton	——	- 12.50
Suprex*	ton	——	- 14.00
Whitetex* (c.l.)	ton	——	- 50.00
Windsor Clay* (c.l.)	ton	——	- 14.00
Diatomaceous Earth	ton	30.00	- 50.00
Kaylorite* (c.l.)	ton	——	- 30.00
Lorite*	ton	——	- 30.00
Flock			
Cotton (White)	lb.	.11	- .28
Colored	lb.	.11	- .19
Filfloc F 40-9000*	lb.	——	- .13
F 6000*	lb.	——	- .36
Polycel*	ton	110.00	-210.00
Rayon, Bleached or Dyed	lb.	.80	- 1.25
Rayon, Grey	lb.	——	- .18
Rayon, Pink	lb.	——	- .20
Solka-Floc* (l.c.l.)	lb.	.07	- .16
Glue, Amber	lb.	.16	- .18
Leather			
Flour (dust)	lb.	.12	- .15
Shredded	lb.	.05	- .17
Lignin	lb.	.06	- .08
Indulin*	lb.	.06	- .08
Limestone, Pulverized	ton	3.00	- 5.50
Asbestol Regular*	ton	25.00	- 27.00
Asbestol Superfine*	ton	30.00	- 32.00
Georgia Marble No. 10*	ton	——	- 10.00
Industrial Filler No. 100*	ton	——	- 5.75
Micro Velva A*	ton	49.00	- 51.00
L*	ton	57.00	- 59.00
No. 1 White*	ton	——	- 10.00
Magnesium Carbonate	lb.	.10½	- .14½
K & M Clearcarb*	lb.	——	- .14
Technical* (c.l., eqld.)	lb.	.10½	- .12
Magnesium Oxide			
Magnesite*	lb.	.057	- .073
Magnesium Silicate (see Talc)			
Mica	lb.	.01¼	- .07¾
Concord*	lb.	.07½	- .08¼
Micro-Mica*	lb.	.07½	- .08¼
Mineralite* (c.l.)	ton	40.00	- 85.00
Silversheen*	lb.	.07½	- .08¼
Triple A Mica* (c.l.)	ton	——	- 25.00
Vermiculite*	lb.	——	- .11
Wet Ground Biotite Mica	lb.	.06	- .06¾
Wet Ground Mica No. 160*	lb.	.07½	- .08¼
Pyrophyllite			
No. 261*	ton	——	- 11.50
Pyrax A* (c.l.)	ton	——	- 13.50
WA* (c.l.)	ton	——	- 16.00
Sawdust, Graded	ton	14.00	- 35.00
Silica	ton	16.00	- 27.00
Slate, Powdered (l.c.l.)	ton	15.00	- 20.00
Lo-Micron Slate Flour*	lb.	——	- .04½
No. 133 Slate Flour*	ton	——	- 4.55
Sodium Silico Aluminate			
Zeolex 23*	ton	120.00	-140.00
Talc (Magnesium Silicate)			
Asbestol Regular*	ton	——	- 25.00
Eastern RC-500*	ton	——	- 30.00
No. 41*	ton	——	- 17.70
No. 549*	ton	——	- 63.00
French*	ton	——	- 59.00
L.S. Silver*	ton	29.25	- 34.25
No. 367*	ton	——	- 13.00
No. 1600*	ton	——	- 70.60
No. 1768*	ton	——	- 13.00

your best bet in a small moulding press

P·H·I*

COMPACT·FAST DEPENDABLE

- Accurate temperature and pressure controls
- Ram pressures up to 125 tons
- Fast-action two-stage pump
- Choice of platens— 8″x8″, 8¾″x12″, 12½″x12½″, 12½″x18½″, 18½″x18½″, 24½″x24½″
- Special hot-cold laminating presses
- Modification to suit customer requirements.



P.H.I. Hydraulic Presses are being used in almost every line of industry for almost every kind of compression operation where handy, quick-acting, dependable pressures and accurate heat control is required.

Write for Circular

PASADENA HYDRAULICS INC.
279 N. Hill Avenue
Pasadena 4, California

PRESS

PLYMOUTH STEARATES

ZINC STEARATES
WETTABLE ZINC STEARATE
CALCIUM STEARATES
BARIUM STEARATE
MAGNESIUM STEARATES
ALUMINUM STEARATES

PLYMOUTH BRAND METALLIC SOAPS

Whether it's Plymouth Zinc Stearate . . . for use as a lubricant or dusting agent . . . or another of the fine Plymouth Brand Stearates . . . you are **always** sure of getting Quality and Uniformity . . . with every shipment.

Write for samples and Data on Plymouth Zinc Stearate #220 — a special "Sponge Rubber" grade.

M. W. PARSONS-PLYMOUTH, INC.

59 BEEKMAN STREET, NEW YORK 38, N. Y.

Telephone: BEEKMAN 3-3162—3163—3164 Cable: PARSONDILS, NEW YORK

DISTRIBUTION POINTS AND AGENTS IN ALL PRINCIPAL CITIES

EVERLASTINGLY PLIABLE

CLEAN-PEELING

OUTSTANDING SURFACE GLOSS

NON-FLAKING

OF UNIFORM CALIPER

MINIMUM SURFACE LOAD

YET TIGHTLY FILLED

HOLLISTON BRATEX

RUBBER HOLLAND

BRATEX is available in three standard qualities, 20 and 40 inch widths, 100 and 250 yard rolls. Special size rolls to order.

THE HOLLISTON MILLS, INC.

NORWOOD · MASSACHUSETTS

NEW YORK · PHILADELPHIA · CHICAGO
MILWAUKEE · SAN FRANCISCO

FILLERS (Cont'd)

Talc (cont'd)			
Nytal 200*	ton	——	- 27.00
300*	ton	——	- 37.00
Sierra White*	ton	25.75	- 30.75
Soapstone*	ton	——	- 13.00
Walnut Shell Flour	ton	55.00	-100.00
Stan-Shell*	ton	80.00	-100.00
Whiting, Commercial	ton	——	- 7.00
Allied Whiting*	ton	9.50	- 20.00
Camel-Carb*	ton	——	- 10.00
C-C-O White*	ton	——	- 19.00
Georgia Marble No. 15*	ton	——	- 15.00
No. 16*	ton	——	- 16.00
Keystone* (c.l.)	ton	——	- 16.00
Piqua No. 1 YAA* (c.l.)	ton	——	- 9.00
No. 2 LS* (c.l.)	ton	——	- 9.00
Snowflake* (c.l.)	ton	17.00	- 18.00
Stan-White 325*	ton	8.50	- 11.10
Veroc* (c.l.)	ton	——	- 9.50
Welco* (c.l.)	ton	——	- 9.50
York White R* (c.l.)	ton	——	- 9.00
Wood Flour	ton	25.50	- 48.00

FINISHING MATERIALS, SURFACE

Beaco Finishes*	gal.	2.10	- 2.35
Black Out*	gal.	4.50	- 8.00
Shellac, Orange Gum	lb.	.50	- .60
VanWax*	gal.	1.45	- 1.50

FLAME RETARDANTS

Celluflex CEF* (dms.)	lb.	——	- .65
Chlorowax 70*	lb.	.18	- .19
Halowax*	lb.	.35½	- .61½
Zinc Borate 3167*	lb.	.1920	- .2020
Zyrox Compounds*	lb.	.38½	- .95½

LATEX MODIFIERS

OPD-101*	lb.	——	- .26

LUBRICANTS, MOLD

Akro Gel*	lb.	——	- .165
Alipal CO-433*	lb.	——	- .20
CO-436*	lb.	——	- .26
Aquadag*	lb.	3.50	- 4.00
Aquarex D*	lb.	——	- .78
L*	lb.	——	- .94
ME*	lb.	——	- .80
MDL*	lb.	——	- .33
WAQ*	lb.	——	- .22
Armid O*	lb.	.39	- .41
Borax, Granular (l.c.l.)	ton	89.00	- 94.00
Carbowax 4000*	lb.	.31	- .32
CD Mold Release A*	gal.	——	- 6.50
B*	gal.	——	- 5.00
Colite Concentrate* (dms.)	gal.	.90	- 1.15
Colite D43D*	gal.	1.15	- 1.40
Concentrex*	lb.	——	- .25
Dag Dispersions No. 197*	lb.	1.85	- 2.90
D.C. 7 Compound*	lb.	5.13	- 6.50
D.C. Emulsion No. 7*	lb.	1.59	- 2.07
No. 8*	lb.	1.36	- 1.80
No. 35*	lb.	1.36	- 2.50
No. 35A*	lb.	1.36	- 2.50
No. 35B*	lb.	1.36	- 2.50
No. 36*	lb.	1.36	- 2.50
D.C. Mold Release Fluid*	lb.	3.39	- 4.75
Dri-Lube*	lb.	——	- .22
G-E Silicone Fluid SF-92*	lb.	3.39	- 5.00
G-E Silicone Emulsion SM-33*	lb.	1.36	- 1.55
SM-61*	lb.	1.36	- 1.55
Glydag G*	lb.	1.30	- 2.45
Hawkeye Flake* (dlvd.)	lb.	.14¾	- .15½
HSC No. 35*	lb.	1.36	- 1.48
Igepal CO-430*	lb.	——	- .29
CO-530*	lb.	——	- .29
CO-630*	lb.	——	- .29
Igepon AP-78*	lb.	——	- .48
T-51*	lb.	——	- .13½
Kokobace R*	lb.	.17½	- .18½
Linde Silicone L-45*	lb.	3.72	- 4.80
LE-45*	lb.	1.46	- 2.50
Lubri-Flo*	gal.	10.00	- 12.00
Migralube*	lb.	——	- .35
ML-1027-2C*	gal.	——	- 2.15
ML-1028-2C*	gal.	——	- 2.15
Mold Lubricant No. 72 Conc.* (dms.)	gal.	——	- 1.90
No. 735* (dms.)	gal.	——	- 1.25
No. 769* (dms.)	gal.	——	- 1.20
No. 856* (dms.)	gal.	——	- 1.90
No. 880* (dms.)	gal.	——	- 1.12
No. 935* (dms.)	gal.	——	- 1.64
No. 980* (dms.)	gal.	——	- 1.60
Moldeze No. 3*	gal.	5.00	- 6.00
Mold-Brite*	gal.	——	- 1.50
Monopole Oil MD*	lb.	——	- .16
Olate Flakes*	lb.	.22¼	- .23¼
Orvus WA Paste* (dms.)	lb.	——	- .23
Polyglycol 15-200*	lb.	.25	- .28¾
E4000*	lb.	.31	- .37
Prodag*	lb.	.28	- .42
Purity Flake* (dlvd.)	lb.	.17¾	- .18½
Rubber-Flo*	gal.	1.25	- 2.00

LUBRICANTS, MOLD (Cont'd)

Rubber-Glo*	gal.	——	- .94
Rusco Mold Paste*	lb.	——	- .25
Sericite* (l.c.l.)	ton	65.00	- 75.00
SF-92 Silicone Fluid*	lb.	3.70	- 4.22
SM-33 Silicone Emulsion*	lb.	1.50	- 1.68
55*	lb.	1.46	- 2.00
61*	lb.	1.56	- 1.68
Thermalube*	lb.	——	- .13¾
Ucon Lubricants*	lb.	.26¾	- .27¾
Ulco Mold Soap*	lb.	.12	- .23

LUBRICANTS, RUBBER

Diglycol Stearate Neutral (and SE) (dms.)	lb.	——	- .25
Emcol DS-50*	lb.	——	- .38
RDH-S*	lb.	——	- .27
Extrud-o-Lube*	gal.	——	- 1.54
G.B. Naphthenic Neutrals*	gal.	.11	- .18
Ivory Chips*	lb.	.18¾	- .19¾
Latex-Lube GR* (dlvd.)	lb.	.19¼	- .20
No. 82-A* (450 lb. dms.)	lb.	——	- .08½
Propylene Stearate (dms.)	lb.	.35	- .60

LUBRICANTS, RUBBER SURFACE

Barium Stearate	lb.	.37	- .42
Calcium Stearate	lb.	.35	- .40
D.C. 4 Compound*	lb.	5.13	- 6.50
D.C. 200 Fluid*	lb.	3.39	- 4.75
ELA*	lb.	——	- .82
G-E Silicone Fluid SF-92*	lb.	3.39	- 5.00
Glycerized Lubricant*	gal.	——	- 1.48
Glydag B*	lb.	1.50	- 2.10
G*	lb.	1.30	- 2.45
Hydro-Zinc*	lb.	——	- .20
Latex-Lube Pigmented* (dlvd.)	lb.	.17¼	- .18¼
R-66*	lb.	——	- .16½
Liqui-Lube* (dlvd.)	lb.	——	- .16¼
N.F.* (dlvd.)	lb.	——	- .16¾
N.T.* (dlvd.)	lb.	——	- .16¾
Polyethylene Glycol	lb.	.22	- .26
Rubber Free (Concentrate)*	gal.	——	- 1.44
Jel*	lb.	.18	- .21½
Slab-Dip*	lb.	——	- .15
Stock-Lube*	lb.	——	- .19
Zinc Stearate	lb.	.39	- .42

MOLD CLEANERS

Actusol* (dlvd.)	gal.	1.45	- 1.65
Alkon* (dlvd.)	lb.	.16	- .16½
CA-301*	gal.	——	- 2.29
CA-302*	gal.	——	- 2.63
Metso Anhydrous*	cwt.	5.10	- 7.35
Metso 99*	cwt.	4.60	- 6.85
200*	cwt.	6.00	- 8.25
Granular*	cwt.	4.10	- 6.35
Orvus Extra Granules*	lb.	.22½	- .23½
Rubber-Sol*	gal.	2.97	- 3.97
Sprex A.C.* (dlvd.)	lb.	.17¾	- .18¾

PEPTIZING AGENTS

Peptizer P-12*	lb.	.95	- 1.25
Pepton 22 Plasticizer*	lb.	.79	- .82
RPA 2*	lb.	——	- .78
3*	lb.	——	- .47
3 Conc.*	lb.	——	- .83
5*	lb.	——	- .59
6*	lb.	——	- 1.58

PLASTICIZERS & SOFTENERS

Acto 500*	lb.	——	- .09
Adipol BCA* (dms.)	lb.	.47	- .47½
2EH*	lb.	.43½	- .46½
10A*	lb.	.43½	- .46½
ODY*	lb.	.48	- .51
810*	lb.	.43½	- .46½
XX*	lb.	.43½	- .46½
American Pine Tar Oil*	lb.	.0438	- .0712
Arneel*	lb.	.27	- .39
Arolene 1980* (c.l.)	lb.	——	- .10
Aromatic Plasticizer 10* (and 25*) (dms.)	lb.	.05	- .06½
Aromatic Tar	gal.	.0573	- .1973
Bardol*	lb.	.02¾	- .03¾
B*	lb.	.06¼	- .06½
Bayol D*	gal.	——	- .382
F*	gal.	——	- .52
Beeswax, Bleached	lb.	.72	- .75
Yellow Refined	lb.	.70	- .90
Bondogen*	lb.	.55	- .60
B.R.C. No. 20*	lb.	.0150	- .0175
B.R.H. 2*	lb.	.0213	- .0351
BRS 700*	lb.	.0200	- .0285
B.k.T. 3*	lb.	.0180	- .0265
4*	lb.	.0250	- .0260
7*	lb.	.0300	- .0310
B.R.V.*	lb.	.0475	- .0565
Bunarex Resins*	lb.	.07	- .08

PLASTICIZERS & SOFTENERS (Cont'd)

Bunatak AH*	lb.	——	- .09½
N*	lb.	——	- .31
U*	lb.	——	- .17½
No. 90*	lb.	——	- .09
No. 210*	lb.	——	- .14
Burgundy Pitch*	lb.	.0843	- .0888
Butac*	lb.	.11¾	- .12¾
BxDC (dms.)	lb.	.40	- .41
Butyl Carbitol Perlargonate (dms.)	lb.	——	- .64½
Butyl Cellosolve Perlargonate (dms.)	lb.	——	- .68
Butyl Oleate	lb.	.23¼	- .26
Butyl Palmitate	lb.	——	- .26½
Butyl Stearate (dms.)	lb.	.23	- .25
BWH-1*	lb.	.16	- .17
Cabflex DDA*	lb.	.42½	- .45½
DDP*	lb.	.30½	- .33½
Di-BA*	lb.	.43¼	- .46¼
Di-OA*	lb.	.42½	- .45½
Di-OP*	lb.	.30½	- .33½
Di-OZ*	lb.	.48	- .50¾
DOA*	lb.	.42½	- .45½
DOP*	lb.	.30½	- .33½
ODA*	lb.	.42½	- .45½
ODP*	lb.	.30½	- .33½
TCP*	lb.	.33	- .36
Califlux 510* (and 550*)	lb.	.02½	- .03¼
G.P.*	lb.	.01¼	- .02
R-100*	lb.	.04½	- .05¼
TT*	lb.	.0170	- .0245
Candelilla Wax, Prime	lb.	.62	- .64
Refined Light	lb.	.63	- .65
Carbowax 4000* (dms.)	lb.	.31	- .32
Cardolite 615*	lb.	.33¾	- .36¾
816*	lb.	.25¾	- .28¾
Carnauba Wax, Crude	lb.	.66	- .68
Flaked	lb.	.75	- 1.20
Refined, Technical	lb.	.69	- .74
Refined, Pure	lb.	.75	- .80
Yellow	lb.	1.03	- 1.10
Celluflex* (dms.) 112* (t.c., dlvd.)	lb.	——	- .33
179-A* (t.c., dlvd.)	lb.	——	- .33
179-C* (t.c., dlvd.)	lb.	——	- .33
179-EG* (t.c., dlvd.)	lb.	——	- .33
DBP* (t.c., dlvd.)	lb.	——	- .30
DOP* (t.c., dlvd.)	lb.	——	- .30½
TPP* (dms., eqld.)	lb.	——	- .40
Ceresin Wax	lb.	.11½	- .28
White and Yellow	lb.	.14½	- .22
Chlorowax 40*	lb.	.14½	- .15½
CTLA Polymer*	gal.	.20	- .36
Cumar Resins*	lb.	.06½	- .17
Darex DBP*	lb.	.33	- .35¾
DOP*	lb.	.34	- .37
DIOP*	lb.	.34	- .37
D.B.M.*	lb.	.32	- .34¾
Degras, Common	lb.	——	- .14
Diallyl Phthalate (dms.)	lb.	.51½	- .52¼
Dibenzyl Sebacate	lb.	.88	- .89½
Dibutoxyethyl Sebacate	lb.	——	- .56¾
Dibutyl Phthalate	lb.	.30	- .32
Dibutyl Sebacate	lb.	.64	- .65½
Dicapryl Adipate	lb.	.43	- .45
Dicapryl Phthalate	lb.	.29½	- .31½
Dicapryl Sebacate	lb.	.58	- .59½
Di-Carbitol Phthalate (dms.)	lb.	.42	- .42½
Dicyclohexyl Phthalate	lb.	.59	- .60
Diethyl Phthalate (t.c.)	lb.	.25	- .27¾
Di-2-ethylhexyl Phthalate (t.c.)	lb.	——	- .30½
Dihexyl Adipate	lb.	.42	- .44
Dihexyl Phthalate	lb.	.30	- .32
Dihexyl Sebacate	lb.	.62	- .63½
Diisobutyl Azelate	lb.	——	- .47¾
Di-iso-octyl Adipate (dms.)	lb.	.42½	- .44½
Di-iso-octyl Phthalate (t.c.)	lb.	.30½	- .32½
Dimethyl Phthalate (t.c.)	lb.	.27½	- .30¼
Dimethyl Sebacate	lb.	1.25	- 1.26½
Dinopol 235*	lb.	.33½	- .36½
IDO*	lb.	.30½	- .33½
MOP*	lb.	.32	- .35
Dioctyl Phthalate (dms.)	lb.	.30½	- .32½
Dioctyl Sebacate (dms.)	lb.	.58	- .59½
D.I.O.P. (dms.)	lb.	.30½	- .33½
Dipolymer Oil	gal.	.33	- .48
Dispersing Oil No. 10*	lb.	.06	- .06¼
Dutrex 6*	gal.	——	- .11
15E*	gal.	——	- .10
Elastex 10-P*	lb.	.30½	- .33½
50-B*	lb.	.25	- .28
DCHP*	lb.	.59	- .60
Emulphor EL-719*	lb.	——	- .62
Estac*	lb.	——	- .16
Ethox* (dms.)	lb.	.45	- .45½
Flexol B-400*	lb.	.27	- .28
DOP*	lb.	.32½	- .33½
TOF*	lb.	.45½	- .46½
3GH*	lb.	.45½	- .46
3GO*	lb.	.54½	- .55
4GO*	lb.	.34½	- .35½
426*	lb.	.27	- .30
Flexricin P-1*	lb.	——	- .32
P-4*	lb.	——	- .31
P-6*	lb.	——	- .37
P-8*	lb.	——	- .33
Fortex* (dms.)	lb.	.12½	- .14½
Galex W-100*	lb.	.15½	- .19¼
G.B. Asphaltic Flux*	gal.	.08	- .14
G.B. Light Process Oil*	lb.	.02½	- .03¼
Medium Process Oil*	lb.	.03½	- .04¼
G.B. Naphthenic Neutrals*	gal.	.11	- .18
Good-rite GP233*	lb.	.44¾	- .47¾
GP261*	lb.	.34	- .37

Lacquers for Rubber...

Manufacturers of quality lacquer products for industry, equipped to fill your lacquer needs quickly and economically.

CLEAR AND COLORED

- NEW, improved LACQUERS for Rubber Footwear, or any rubber product where lacquer is used as a pre-cure coating.
- SOLE and HEEL LACQUERS. Eliminate seconds by using our special pigmented lacquers. Can be supplied in any color desired.
- NCP 1909. An anti-tack coating. Spray or brush it on any tacky surface where powder is normally used to kill tack before cure.
- CASUALS, footwear. NCP 1909 is an excellent dulling and anti-tack agent on edges of soles or crepe wrappers used in the manufacturing of casual type footwear.
- SPECIAL lacquers for all types of rubber products.

Write for complete details

The National Chemical & Plastics Co.

1424 Philpot Street • Baltimore 31, Maryland

Thomaston TEXTILES

for the RUBBER INDUSTRY

specifically engineered to meet your needs

TIRE FABRICS
HOSE AND BELT DUCKS
CHAFERS
YARNS • THREADS • CORDAGE
SHEETINGS • COATING
FABRICS • DIVERSIFIED
COTTON FABRICS

DEPENDABLE THOMASTON Fabrics SINCE 1900

We invite your inquiries

Thomaston Mills

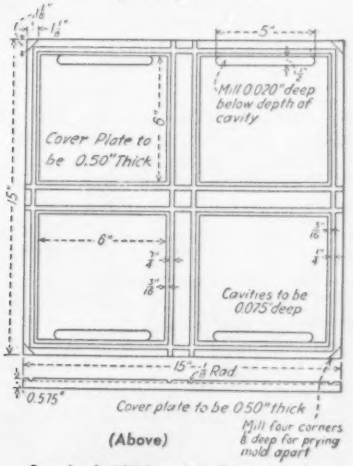
THOMASTON, GEORGIA • NEW YORK OFFICE: 40 WORTH STREET
AKRON, OHIO OFFICE, 308 AKRON SAVINGS AND LOAN BUILDING

HOGGSON

TOOLS, MOLDS AND DIES

For Rubber Testing & Production

Shown here are but a few of the many types of rubber working equipment available. Please submit your problem.


Mill 0.020" deep below depth of cavity
Cover Plate to be 0.50" Thick
Cavities to be 0.075 deep
Cover plate to be 0.50" thick
Mill four corners ⅛ deep for prying mold apart

(Above)

Standard ASTM and Federal dies for cutting test tensile and tear strength samples, and dies for slab curing carried in stock. Write for catalog.

Pacific Coast: H. M. Royal, Inc., Los Angeles

HOGGSON & PETTIS MANUFACTURING CO. • 141A Brewery St. • NEW HAVEN 7, CONN.

PLASTICIZERS & SOFTENERS (Cont'd)

Harflex 500* (dms.)	lb.	.31½	.33½
Herron-H.T.*	gal.	.16	.27
Herron-Plas*	lb.	——	.03¾
Herron-Wax*	lb.	.05¼	.06
No. 23*	lb.	.08¼	.08¾
No. 24*	lb.	.07¼	.07¾
HSC No. 13*	lb.	.27	.30
Indonex 632½* (633½*, 634½*, 637½*)	gal.	.11	.17
Kapsol*	lb.	.32¼	.35¼
Kenflex*	lb.	.18	.27
Kesscoflex 101* (dms.)	lb.	——	.39
102* (dms.)	lb.	——	.32½
103* (dms.)	lb.	——	.41½
104* (dms.)	lb.	——	.48
105* (dms.)	lb.	——	.33¼
106* (dms.)	lb.	——	.35½
108* (dms.)	lb.	——	.37
109* (dms.)	lb.	——	.36¼
KP 23* (dms.)	lb.	.29	.32
90* (dms.)	lb.	.40	.43
140* (dms.)	lb.	.48	.48½
201* (dms.)	lb.	.58¼	.59¼
220* (dms.)	lb.	.31	.34
555* (dms.)	lb.	.33¼	.33¾
Kremol 40*	gal.	.36	.46
50*	gal.	.39	.49
Kronisol* (dms.)	lb.	.33	.35½
Kronitex AA* (dms.)	lb.	.33	.36
1* (dms.)	lb.	.33	.36
K-3*	lb.	.33	.36
MX*	lb.	.33	.36
Lanolin, Tech. Anhydrous	lb.	——	.28
Lead Oleate	lb.	——	.30½
Lindol* (dms., t.c.)	lb.	.33	.36
2-Mercaptoethanol (dms.)	lb.	1.25	1.50
Methox*	lb.	.35¼	.37¾
Methyl Laurate	lb.	.25	.27
Methyl Oleate	lb.	——	.20
Methyl Stearate (dms.)	lb.	——	.30
Monoplex S-71*	lb.	.46½	.47½
Montan Wax, Crude	lb.	.13½	.15
Flaked	lb.	.18	.40
Morflex*	lb.	.32	.69½
MR 2088* (dms.)	lb.	——	.19
Natac*	lb.	.11¼	.12¼
Nebony Resins* (dms.)	lb.	.04	.04½
Neolene 210* (t.c.)	lb.	——	.16
212* (t.c.)	lb.	——	.14
220* (t.c.)	lb.	——	.15
Nerium*	lb.	——	.09
Nevillac Resins* (dms.)	lb.	.31	.85
Neville Resins* (dms.)	lb.	.12	.18
Nevindene Resins* (dms.)	lb.	.15	.18
Nevinol* (dms.)	lb.	——	.20
Nuba 1* (and 2*) (dms.)	lb.	.05¾	.06¼
3X* (dms.)	lb.	.07¾	.08¼
No. 480 Oil Proof Resin*	lb.	——	.18
Ohopex Q10* (dms.)	lb.	.29½	.32½
R9* (dms.)	lb.	.35½	.37¾
Opalwax	lb.	.37	.38
Ortho-Nitrobiphenyl	lb.	.13	.15
Ozokerite Wax, White and Yellow	lb.	.22	.43
Paradene Resins (dms.)	lb.	.06½	.07½
Para Flux* (dms.)	gal.	.19¼	.20¼
2016* (dms.)	gal.	.22	.23
Para Lube* (l.c.l.)	lb.	.046	.048
Paraplex G-60*	lb.	.35	.36
G-62*	lb.	.37½	.38½
Parmo*	lb.	.06	.13½
Pepton 22 Plasticizer*	lb.	.79	.82
PG-16*	lb.	——	.35
Philrich-5* (t.c.)	gal.	——	.11
Picco 10* (and 25*)	lb.	.15	.15½
60* (and 75*)	lb.	.14½	.15
100*	lb.	.13	.14
Piccocizer 30*	lb.	.05½	.07
Piccolastic A* (B*, C*, D* & E*)	lb.	.28	.29
FT* (FHF* & FN*)	lb.	.1815	.1965
T-135*	lb.	.22¾	.23½
Piccolyte S Resins*	lb.	——	.2275
Piccopale Resins*	lb.	.086	.116
Piccoumaron Resins*	lb.	.06½	.18
Pigmentar*	lb.	.0427	.0712
Pigmentaroil*	lb.	.0427	.0712
Plastac M*	lb.	——	.09¼
Plasticizer 2286*	lb.	——	.26¼
Plasticizer 4141*	lb.	.56¾	.66¾
Plasticizer MP*	lb.	.0350	.0755
Plasticizer ODN*	lb.	.31	.37
Plasticizer SC*	lb.	.54	.55
Plasticizer W-13*	lb.	.37	.38¾
Plastoflex 3*	lb.	——	.52
50*	lb.	.34½	.35¼
55*	lb.	.31	.32
520*	lb.	.37½	.38½
SP-2*	lb.	——	.43
VS*	lb.	.41¾	.42¾
Plastogen*	lb.	.07¾	.08
Plastolein 9050* (c.l.)	lb.	.53¼	.55½
9055*	lb.	.29¾	.31½
9058*	lb.	.49¾	.51½
9250*	lb.	.36	.37¾
9715*	lb.	.38¾	.40½
Plastone*	lb.	.27	.30
Polycizer 162*	lb.	.30½	.33½
332*	lb.	.43½	.46½
ED*	lb.	——	.56¾
Polyco 438*	lb.	.34	.35
Polymel C-130*	lb.	.19½	.20½
D*	lb.	.23½	.24½
6*	lb.	.05¾	.07¾
Process Oil C-255* (c.l.)	gal.	——	.22
Propylene Stearate (dms.)	lb.	——	.32

PLASTICIZERS & SOFTENERS (Cont'd)

PRR 1*	gal.	.15	.35
PT 67 Light Pine Oil* (dms.)	gal.	——	.60
101 Pine Tar Oil* (t.c., dms.)	gal.	.0427	.0601
400 Pine Tar* (600* & 800*) (t.c., dms.)	gal.	.0427	.0601
PX-104*	lb.	.32	.33
PX-108*	lb.	.32½	.33½
PX-138*	lb.	.32½	.33½
PX-208*	lb.	.44½	.45½
PX-238*	lb.	.44½	.45½
PX-404*	lb.	.68½	.69
PX-438*	lb.	.63½	.64
PX-917*	lb.	.35	.36
Reogen*	lb.	.13¼	.13½
465 Resin* (dms.)	lb.	.07	.07½
Resin 731-C*	cwt.	——	15.00
Resin C*	lb.	.0225	.0310
Resinex*	lb.	.04	.04½
L-4*	lb.	.03	.04¼
Rexflex*	lb.	——	.15
Rosin Oil	gal.	.54	1.20
R.S.O. Softening Oil*	lb.	.03	.05
Rubberol*	lb.	——	.25¾
Santicizer B-16*	lb.	.48¾	.49¾
E-15*	lb.	.52¾	.53¾
M-17*	lb.	.44¾	.45¾
No. 140*	lb.	.35	.36
No. 141*	lb.	.36	.37
No. 160*	lb.	.27	.28
No. 602*	lb.	——	.30½
No. 603*	lb.	——	.27
Sherolatum*	lb.	.03½	.06
Solarite Resin No. 11*	lb.	.16½	.22½
Staflex DBES*	lb.	.67½	.68½
DOS*	lb.	.68	.69
IXA*	lb.	.34	.35
KA*	lb.	.37¾	.38¾
Stanolind Petrolatum*	lb.	.053	.089
Wax*	lb.	.31	.33
Sunny South Burgundy Pitch*	lb.	.1005	.1060
Pine Tar Oil*	lb.	.0247	.0712
Rosin Oil*	gal.	.58	.87½
Superla Wax*	lb.	.34½	.44
Syncera Wax*	lb.	.23	.34
Syn Tac* (c.l.)	gal.	——	.33
Synthetic Revertant Oil	lb.	——	.16
Tar, Refined	gal.	.1200	.1760
Terpene A*	gal.	——	.65
TP-90B*	lb.	——	.59
TP-95*	lb.	——	.65
Transphalt Resins*	lb.	.02¼	.04¾
Triacetin	lb.	.43	.47
Tributyl Phosphate (dms.)	lb.	.52	.53
Tricresyl Phosphate (t.c.)	lb.	.33	.36
Turgum S*	lb.	.10	11
Vanadiset B*	lb.	.03½	.06
C*	lb.	.03	.05¾
MR 80 Mesh*	lb.	.07¼	.10
Vistac No. 1*	gal.	1.00	1.21
P*	lb.	.18	.18½
Vopcolene 50*	lb.	——	.37
Witcizer 100*	lb.	.26	.27
200*	lb.	.19½	.20½
201*	lb.	.23½	.24½
300*	lb.	.30	.33
312*	lb.	.30½	.33½
313*	lb.	.30½	.33½
412*	lb.	.42½	.45½
Witresin*	ton	50.00	57.50

PROCESSING AIDS

Castor Oil, Blown (dms.)	lb.	——	.21
Refined (dms.)	lb.	——	.18½
Castorwax*	lb.	——	.24½
Dutrex 7*	lb.	.12	.20
ELA*	lb.	——	.82
Emcol MAS*	lb.	——	.44
Kenflex N*	lb.	——	.18
Millrex*	lb.	——	.15
Polycin 783*	lb.	——	.24½
Resin No. 510*	lb.	.15	.22
Pulverized*	lb.	.20½	.25
Zyrox*	lb.	.50	.79

PROTECTIVE & STABILIZING AGENTS

Acacia*	lb.	.12¾	.21
Alpha Protein	lb.	——	.23
Aroostocrat*	lb.	——	.07½
Carob Bean Flour	lb.	——	.30
Casein	lb.	.24	.31
Emcol K-8300* (dms.)	lb.	.19	.20
Ethylene Diamine 68%	lb.	.44	.47
Gum Arabic	lb.	——	.19
Karaya Gum	lb.	——	.25
Locust Bean Gum	lb.	——	.31
Prosein*	lb.	——	.06
Stablex B*	lb.	.50	.95
K*	lb.	.27	.35

RECLAIMING AGENTS

Amalgamator Z-4*	lb.	.32	.34
Armeen C*	lb.	.45	.47
Mixed Crude*	lb.	.17	.23
T*	lb.	.29	.31
Burco RA*	lb.	.05½	.08¼
C-6 Oil* (28* & 32*)	gal.	.33	.38

RECLAIMING AGENTS (Cont'd)

C-10 Oil*	gal.	.25	.30
C-33* (t.c.)	gal.	——	.21½
C-42* (t.c.)	gal.	——	.23
Caustic Soda—Flake 76% (c.l., dms.)	cwt.	——	4.25
Liquid 50% (t.c.)	cwt.	——	2.70
Solid 76% (c.l., dms.)	cwt.	——	3.85
Cresylic Acid (99-100%)	gal.	.80	.94
D-4* (t.c.)	gal.	——	.27
E-5* (t.c.)	gal.	——	.25
Flake Calcium Chloride (77-80%)	ton	——	27.00
G.B. Reclaiming Oil*	gal.	.12	.18
CD-10*	gal.	.10	.16
CD-50-U*	gal.	.18	.24
Gensol No. 6* (t.c.)	gal.	——	.40
Heavy Aromatic Naphtha	gal.	——	.13¼
LX-77 Reclaiming Solvent*	gal.	.21	.33
LX-572 Reclaiming Oil*	gal.	.27	.32
LX-777 Reclaiming Oil*	gal.	.23	.33
Neo-Fat D-242*	lb.	.05½	.07¾
No. 517 H.B. Oil*	gal.	.11½	.16½
535*	gal.	.22	.27
PT 67 Light Pine Oil* (dms.)	gal.	——	.60
PT 101 Pine Tar Oil* (t.c., dms.)	gal.	.0427	.0601
PT 150 Pine Solvents* (dms.)	gal.	——	.44
Q Oil* (t.c.)	gal.	——	.286
Reclaiming Oil 3186-G*	gal.	.25	.36½
Reclaiming Reagent No. 1431*	lb.	.21	.25
R.P.A. No. 3*	lb.	——	.47
RR-10*	lb.	——	.36
Soda Ash (c.l., bags)	cwt.	——	1.65
Solvent 534*	gal.	.20½	.26½
Solvent Oil 21*	gal.	.24	.29
C-42*	gal.	.23	.28
Union Solvent 4060-O*	gal	——	.184
X-1 Resinous Oil*	lb.	.0210	.0300

REINFORCING AGENTS—CARBON BLACK

Channel, Hard Processing (HPC) (bags)

Atlantic HPC-98*	lb.	.0740	.1225
Continental F*	lb.	.0740	.1225
Croflex*	lb.	.0740	.1225
Dixiedensed (and S)*	lb.	.0740	.1225
HX Compact*	lb.	.0740	.1225
Kosmobile (and S)*	lb.	.0740	.1225
Micronex HPC*	lb.	.0740	.1225
Spheron 4*	lb.	.0740	.1225
Witco No. 6*	lb.	.0740	.1225

Channel, Medium Processing (MPC) (bags)

Atlantic MPC-95*	lb.	.0740	.1225
Collocarb*	lb.	——	.0625
Continental A*	lb.	.0740	.1225
Croflex TH*	lb.	.0740	.1225
Dixiedensed HM (and S-66)	lb.	.0740	.1225
Huber Arrow TX*	lb.	.0740	.1225
Kosmobile HM (and S-66)	lb.	.0740	.1225
Micronex Standard*	lb.	.0740	.1225
Spheron 6*	lb.	.0740	.1225
Texas M*	lb.	.0740	.1225
Witco No. 1*	lb.	.0740	.1225

Channel, Easy Processing (EPC) (bags)

Atlantic EPC E-42*	lb.	.0740	.1225
Collocarb*	lb.	——	.0625
Continental AA*	lb.	.0740	.1225
Croflex 77*	lb.	.0740	.1225
Dixiedensed 77*	lb.	.0740	.1225
Kosmobile 77*	lb.	.0740	.1225
Micronex W-6*	lb.	.0740	.1225
Spheron 9*	lb.	.0740	.1225
Texas E*	lb.	.0740	.1225
Witco No. 12*	lb.	.0740	.1225
Wyex*	lb.	.0740	.1225

Channel, Conducive (CC) (bags)

Continental R-40*	lb.	.2300	.3000
Dixie 5 Dustless*	lb.	.1200	.1900
Dixie Voltex*	lb.	.2300	.3000
Kosmink Dustless*	lb.	.1200	.1900
Kosmos Voltex*	lb.	.2300	.3000
Spheron C*	lb.	.1400	.1850
Voltex*	lb.	.2300	.3000
Texas 109*	lb.	.0790	.1190

Conducive Furnace Black (CF) (bags)

Aromex 115*	lb.	.0890	.1290
Shawinigan Acetylene Black*	lb.	.1700	.2600
Vulcan C*	lb.	.1050	.1500

Channel, Surface Treated (STC) (bags)

Texas 109*	lb.	.0790	.1190

The Scope and Variety

of our Rubber Work is indicated by the following randomly selected list of tests.

Standard Tests (ASTM) and equipment:

Tensile-modulus-elongation	Crocking
Chemical and oil immersions	Hardness (Shore A & D)
Ozone	Compression set
Forced draft ovens	Weatherometer
Compression-deflection	Oxygen bomb
Plasticity	Abrasion
	Low Temperature
	Adhesive Strength

On Rubber and Plastic Research Problems we invite you to confer without cost or obligation.

Foster D. Snell, Inc.

RESEARCH LABORATORIES
CHEMISTS • ENGINEERS
29 W. 15 St. New York 11, N. Y.
WA 4-8800

BROCKTON CUTTING DIES

Meticulous workmanship has been a tradition at Brockton Cutting Die for three generations. That's why rubber manufacturers turn to us for quality dies of all kinds . . . for dies that really retain their cutting edge. Our experience and facilities enable us to turn out a cutting die for every type of service.

Send your blueprint today for prompt quotation.

BROCKTON CUTTING DIE & MACHINE CO. INC.
CUTTING AND PERFORATING DIES

AVON, MASS.

FACILITIES REPORT

importers and compounders

GENERAL LATEX & CHEMICAL CORPORATION
666 Main Street, Cambridge 39, Mass.

GENERAL LATEX & CHEMICAL CORPORATION (OF OHIO) Ashland, Ohio
GENERAL LATEX & CHEMICAL COMPANY (OF GA.) 1206 Lamar Street, Dalton, Georgia
GENERAL LATEX & CHEMICALS (CANADA) LTD. 425 River Street, Verdun, Montreal, Canada
representatives in principal cities

COMPOUNDING FACILITIES

General Latex operates four large compounding plants at Cambridge, Mass., Ashland, Ohio, Dalton, Ga., and Montreal, Canada. Each plant has a fully integrated staff, research and development laboratory, and complete facilities for compounding rubber latices.

SHIPPING AND STORAGE

With the most modern pumping and storage facilities at Boston, Baltimore and Montreal, natural latex customers can be serviced expeditiously from any of these three ports. GR-S is distributed from each of the company's manufacturing locations.

SOURCES OF SUPPLY

General Latex is the largest independent importer of *natural latex* in the U. S. As exclusive agents for Harrisons & Crosfield, Ltd., Malayan latex you are assured of the finest quality latex, both normal and centrifuged.

General Latex has been appointed sales agent in the U. S. for Goodyear's *GR-S latices* produced in their Akron plant. This association will continue to make available to consumers the same services General Latex has performed since the inception of the government synthetic rubber program.

We believe our facilities provide the broadest, most complete service available to users of natural and synthetic latices, and compounds. Your inquiry to any of our plants will receive prompt attention.

REINFORCING AGENTS—CARBON BLACK (Cont'd)

Furnace, Fast Extruding (FEF) (bags)

Arovel*	lb.	.0600 -	.1000
Collocarb*	lb.	—— -	.0525
Coatinex FEF*	lb.	.0600 -	.1000
Croflex 50*	lb.	.0600 -	.1000
Dixie 50*	lb.	.0600 -	.1000
Kosmos 50*	lb.	.0600 -	.1000
Philblack A*	lb.	.0600 -	.1000
Statex M*	lb.	.0600 -	.1000
Sterling SO*	lb.	.0600 -	.1000

Furnace, Fine (FF) (bags)

Statex B*	lb.	.0650 -	.1050
Sterling 99*	lb.	.0650 -	.1050

Furnace, General Purpose (GPF) (bags)

Dixie 35*	lb.	.0500 -	.0900
Kosmos 35*	lb.	.0500 -	.0900
Sterling V*	lb.	.0500 -	.0900
V (Non-Staining)	lb.	.0500 -	.0900

Furnace, High Abrasion (HAF) (bags)

Aromex*	lb.	.0790 -	.1190
Collocarb*	lb.	—— -	.0675
Continex HAF*	lb.	.0790 -	.1250
Croflex 60*	lb.	.0790 -	.1190
Dixie 60*	lb.	.0790 -	.1190
Kosmos 60*	lb.	.0790 -	.1190
Philblack O*	lb.	.0790 -	.1190
Statex R*	lb.	.0790 -	.1250
Vulcan 3*	lb.	.0790 -	.1250

Furnace, High Modulus (HMF) (bags)

Collocarb*	lb.	—— -	.0525
Continex HMF*	lb.	.0550 -	.0950
Croflex 40*	lb.	.0550 -	.0950
Dixie 40*	lb.	.0550 -	.0950
Kosmos 40*	lb.	.0550 -	.0950
Modulex*	lb.	.0550 -	.0950
Statex 93*	lb.	.0550 -	.0950
930*	lb.	.0470 -	.0870
Sterling L*	lb.	.0550 -	.0950
LL*	lb.	.0550 -	.0950

Furnace, Semi-Reinforcing (SRF) (bags)

Collcarb*	lb.	—— -	.0400
Continex SRF*	lb.	.0450 -	.0850
Croflex 20*	lb.	.0450 -	.0850
Dixie 20*	lb.	.0450 -	.0850
Essex*	lb.	.0450 -	.0850
Furnex*	lb.	.0475 -	.0475
Gastex*	lb.	.0500 -	.0900
Kosmos 20*	lb.	.0450 -	.0850
Pelletex*	lb.	.0450 -	.0850
NS*	lb.	.0450 -	.0850
Shawinigan Acetylene Black*	lb.	.1700 -	.2600
Sterling NS*	lb.	.0450 -	.0850
R*	lb.	.0500 -	.0900
S*	lb.	.0450 -	.0850

Furnace Super Abrasion (SAF) (bags)

Philblack E*	lb.	.1250 -	.1650
Vulcan 9*	lb.	.1250 -	.1680

Furnace, Super Abrasion, Intermediate (ISAF) (bags)

Aromex 125*	lb.	.1000 -	.1400
Continex ISAF*	lb.	.1000 -	.1450
Dixie 70*	lb.	.1000 -	.1450
Kosmos 70*	lb.	.1000 -	.1450
Philblack I*	lb.	.1000 -	.1400
Statex 125*	lb.	.1000 -	.1450
Vulcan 6*	lb.	.1000 -	.1450

Furnace, Super Conducive (SCF) (bags)

Vulcan SC*	lb.	.1800 -	.2230

Thermal, Fine (FT) (bags)

P-33 (c.l.)*	lb.	—— -	.0550
Sterling FT (c.l.)*	lb.	—— -	.0550

Thermal, Medium (MT) (bags)

Shellblack*(†)	lb.	—— -	.0250
Sterling MT (c.l.)*	lb.	—— -	.0400
MT Non-Staining (c.l.)*	lb.	—— -	.0500
Thermax (c.l.)*	lb.	—— -	.0400
Stainless (c.l.)	lb.	—— -	.0500

REINFORCING AGENTS—SILICA

Cab-O-Sil (compressed)*	lb.	.68 -	.75
Cab-O-Sil (uncompressed)*	lb.	.68 -	.75
D. C. Silica (pelletized)*	lb.	.77 -	.81
Hi-Sil 101*	lb.	.10 -	.11½
233*	lb.	.09 -	.10½
X303*	lb.	.40 -	.45
Santocel*	lb.	.62 -	.64
Valron Estersil*	lb.	—— -	1.00

REINFORCING AGENTS—MISCELLANEOUS

Angelo Shellac*	lb.	—— -	.60
Darex Copolymer No. 3*	lb.	.47 -	.49
X34*	lb.	.42 -	.44
43G*	lb.	.39 -	.41
Darex Copolymer Latex No. 3-L (and X34L)*	lb.	.36½ -	.39
Durez 12687 (and 12707)*	lb.	—— -	.37
Durez 13355*	lb.	—— -	.28
Good-rite Resin 50*	lb.	.39 -	.41
Kralac A*	lb.	.43 -	.44
A-EP*	lb.	.40 -	.41
Lampblack	lb.	—— -	.12
Marbon S and S-1*	lb.	.39 -	.41
8000*	lb.	.39 -	.41
Marmix*	lb.	.39 -	.41
Pliolite Latex 150*	lb.	.38 -	.39
Pliolite Resin-Rubber Masterbatches*	lb.	.38 -	.56
Pliolite NR*	lb.	.94 -	.95
S3 and S6*	lb.	.43 -	.44
S6B*	lb.	.39 -	.41
Plio-Tuf G75C*	lb.	.53 -	.54
G85C*	lb.	.53 -	.54
Polyco 220*	lb.	.18¼ -	.19¼
Polyfon*	lb.	.08 -	.09

RETARDERS

Benzoic Acid TBAO-2*	lb.	—— -	.44
Dutch Boy Normasal*	lb.	—— -	.46
ESEN*	lb.	.35 -	.37
Good-rite Vultrol*	lb.	.62 -	.64
Harcopol 1183*	lb.	.70 -	.74
Retarder J*	lb.	.62 -	.64
PD*	lb.	.35 -	.37
W*	lb.	—— -	.45
Retardex*	lb.	.47 -	.50

RUBBER SUBSTITUTES

Mineral Rubber

M. R. No. 38*	ton	45.00 -	55.00
Black Diamond*	ton	45.00 -	55.00
Byerlyte*	ton	47.00 -	54.00
Hard Hydrocarbon (dms.)*	ton	46.50 -	48.50
Herron Flake*	ton	—— -	45.00
Mineral Rubber, Solid	ton	42.50 -	44.50

Vulcanized Vegetable Oils

Amberex*	lb.	.29 -	.36
Brown*	lb.	.1310 -	.2200
Car-Bel-Lite*	lb.	.3300 -	.3600
Neophax*	lb.	.1570 -	.2680
White*	lb.	.1480 -	.2520

Miscellaneous Rubber Substitutes

G.B. Asphaltenes*	lb.	.06 -	.06½
Gilsowax B*	lb.	.09 -	.11
Resin No. 1098 (dms.)	lb.	—— -	.62
No. 1198*	lb.	.46¾ -	.49¾

SOLVENTS

Acetone (dlvd.)	lb.	.07 -	.10
American DD Dipentine*	gal.	.30 -	.57
American DD Pine Oil*	lb.	.11¼ -	.13¼
Amsco Lactol Spirits* (t.c.)	gal.	—— -	.19
Naphthol Spirits*	gal.	—— -	.18
Mineral Spirits*	gal.	—— -	.17
Rubber Solvent* (t.c.)	gal.	—— -	.18
Solv A* (t.c.)	gal.	—— -	.24½
Solv A-80* (t.c.)	gal.	—— -	.30
Solv B* (t.c.)	gal.	—— -	.29½
Solv B-90* (t.c.)	gal.	—— -	.32
Solv D* (t.c.)	gal.	—— -	.30
Solv E*	gal.	—— -	.30
Solv F*	gal.	—— -	.30
Solv F-80*	gal.	—— -	.32½
Solv G*	gal.	—— -	.42½
Special Naphtholite* (t.c.)	gal.	—— -	.18
Special Textile Spirits*	gal.	—— -	.19
Super Hi-Flash Naphtha*	gal.	—— -	.45
Super Naphtholite*	gal.	—— -	.18
Textile Spirits* (t.c.)	gal.	—— -	.19
Amyl Chlorides, Mixed (l.c.l.) (dms.)	lb.	.09¼ -	.10¼
Benzol 90%	gal.	.36 -	.40
Butyl Acetate (t.c.)	lb.	.15 -	.16
Butyl Alcohol (t.c.)	lb.	.15 -	.16
Secondary (dlvd.)	lb.	.13 -	.15
Tertiary (dlvd.)	lb.	.14 -	.15
Carbon Bisulfide, Tech.	lb.	.0515 -	.08½
Carbon Tetrachloride	lb.	.08½ -	.10
Cosol 1*	gal.	.37 -	.43
2*	gal.	.42 -	.48
Cyclohexane	gal.	.70 -	.72
85% (t.c.)	gal.	—— -	.36
Cyclohexanone	lb.	.25 -	.27
Diacetone, Pure (dlvd.)	lb.	.12 -	.15
Dichlorethyl Ether (dms.)	lb.	.14½ -	.15
Formal (dms.)	lb.	.30¾ -	.31½
Dichloropentane	lb.	.04¼ -	.14¾
Dicom*	gal.	.30 -	.42
Halowax Oil*	lb.	.28 -	.41
Heptanes* (t.c.)	gal.	.17 -	.22
Hexanes (t.c.)	gal.	.17 -	.22

SOLVENTS (Cont'd)

Isopropyl Alcohol, Ref. 99% (dlvd.)	gal.	.39 -	.59
Ether, Ref. (dlvd.)	lb.	.05 -	.08
Mersol*	gal.	.43 -	.79
Mesityl Oxide (dlvd.)	lb.	.11½ -	.14¼
Methyl Acetone, Syn. (dms., dlvd.)	gal.	.57 -	.63
Methyl Ethyl Ketone	lb.	.11 -	.14
Methyl Isobutyl Ketone (dlvd.)	lb.	.13 -	.16
Methylene Chloride PRG	lb.	.11½ -	.13½
Tech.	lb.	.13½ -	.14½
N-5 Pentane Mix* (t.c.)	gal.	—— -	.13½
N-6 Hexanes* (t.c.)	gal.	—— -	.14½
N-7 Hexanes* (t.c.)	gal.	—— -	.13½
Penetrell*	gal.	.30 -	.57
Petrolene* (t.c.)	gal.	—— -	.14125
Picolines, Alpha, Refined	lb.	.43½ -	.44
Mixed	lb.	—— -	.35
Proprietary Solvent (dms.)	gal.	.51 -	.72
Propyl Acetate (t.c., dlvd.)	lb.	—— -	.10¾
Alcohol (t.c., dlvd.)	lb.	—— -	.10
PT 150 Pine Solvent* (dms.)	gal.	—— -	.44
Pyridine, Refined	lb.	—— -	.75
Quinoline	lb.	.50 -	1.35
Rubber Solvent (t.c.)	gal.	—— -	.16
Rubsol (t.c.)	gal.	—— -	.12875
Skellysolve B (Hexanes)* (t.c.)	gal.	—— -	.158
C (Heptanes)* (t.c.)	gal.	—— -	.151
E (Octanes)* (t.c.)	gal.	—— -	.165
R (Solvent Naphtha)*	gal.	—— -	.129
Solvent, Crude, Light	gal.	.19 -	.28
Solvesso 100* (t.c.)	gal.	.33 -	.37
150 (t.c.)	gal.	.33 -	.37
Sunny South DD Dipentine*	gal.	.30 -	.57
Sunny South DD Pine Oil*	lb.	.11¼ -	.13¼
Sunray*	gal.	.1140 -	.1600
Toluene (dms.)	gal.	—— -	.38
Toluol (t.c.)	gal.	—— -	.34
Trichlorethane	lb.	.13 -	.13½
Triglycol Dichloride	lb.	.63 -	.64
Union Thinner 1* (dms.)	gal.	—— -	.204
3* (dms.)	gal.	—— -	.204
5* (dms.)	gal.	—— -	.194
7* (t.c.)	gal.	—— -	.159
2-50 W Hi-Flash*	gal.	—— -	.41
Xylol	gal.	.34 -	.38

STABILIZING AGENTS (for Vinyl) Resins)

Advastab No. 21*	lb.	1.00 -	1.08
50-LT*	lb.	3.20 -	3.35
BC-105*	lb.	.75 -	.80
E-6-B*	lb.	.80 -	.85
L Paste	lb.	.65 -	.70
X23-74*	lb.	.70 -	.80
X30-15*	lb.	.65 -	.75
XE-82*	lb.	.85 -	.95
Barca 10*	lb.	—— -	.80
Barium Ricinoleate (BVS)	lb.	—— -	.70
Barium Stearate	lb.	.37 -	.42
Basic Silicate White Lead	lb.	.18 -	.19
Cadmium Ricinoleate	lb.	—— -	2.00
Calcium Ricinoleate	lb.	—— -	.55
Dutch Boy DS-207*	lb.	—— -	.54
Plumb-O-Sil A*	lb.	—— -	.29¾
B*	lb.	—— -	.31½
Tribase*	lb.	—— -	.26½
Dythal*	lb.	—— -	.39½
Ferro 120* (dms.)	lb.	.73½ -	.83¼
121* (dms.)	lb.	.68 -	.78
182* (dms.)	lb.	.74 -	.78
200* (dms.)	lb.	1.33 -	1.43
203* (dms.)	lb.	.94 -	.98
211* (dms.)	lb.	.65 -	.75
221* (dms.)	lb.	1.51 -	1.61
541* (dms.)	lb.	.35½ -	.39½
541A* (dms.)	lb.	.81¾ -	.85¾
620* (dms.)	lb.	—— -	.77½
700* (dms.)	lb.	.48¾ -	.58¾
900* (dms.)	lb.	.90 -	.94
903* (dms.)	lb.	.65 -	.69
909* (dms.)	lb.	1.02¾ -	1.12¾
920*	lb.	—— -	.98
931* (dms.)	lb.	.75¾ -	.85¾
1203* (dms.)	lb.	1.30 -	1.34
1206* (dms.)	lb.	1.23 -	1.27
1820* (dms.)	lb.	.90 -	.94
Harshaw 1-V-3*	lb.	—— -	.43
1-V-4*	lb.	—— -	.68
1-V-7*	lb.	—— -	.66
2-V-4*	lb.	—— -	.85
2-V-7*	lb.	—— -	1.10
2-V-8*	lb.	—— -	1.30
2-V-400*	lb.	—— -	.80
5-V-1*	lb.	—— -	.41
5-V-22*	lb.	—— -	.49
7-V-1*	lb.	—— -	.90
7-V-2*	lb.	—— -	.95
7-V-4*	lb.	—— -	1.18
8-V-1*	lb.	—— -	1.10
8-V-5*	lb.	—— -	.80
8-V-100*	lb.	—— -	.84
9-V-1*	lb.	—— -	.76
12-V-5*	lb.	—— -	.75
22-V-1*	lb.	—— -	1.28
24-V-1*	lb.	—— -	1.28
28-V-2*	lb.	—— -	1.18
128-V-5*	lb.	—— -	.86
281-V-4*	lb.	—— -	.90

BOOKS for Technical Men

Available from **RUBBER AGE**

101 West 31st St.
New York 1, N. Y.

LATEX IN INDUSTRY
by Royce J. Noble
PRICE: $15.00* (postpaid-U.S.)

RUBBER: NATURAL AND SYNTHETIC
by H. J. Stern
PRICE: $12.00* (postpaid)

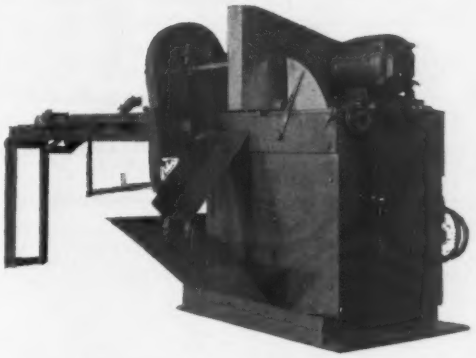
LATEX AND RUBBER DERIVATIVES—
Vols. II & III by F. Marchionna
PRICE: $10.00* (postpaid)

ANNUAL BIBLIOGRAPHY OF
RUBBER LITERATURE: 1946-1948 EDITION
PRICE: $7.50* (postpaid)

RECLAIMED RUBBER
by John M. Ball
PRICE: $5.00* (postpaid-U.S.)

**Add 3% for New York City Addresses*

SLICER MACHINE
for
EXTRUDED STOCKS



Capacity Section up to 4" OD or 4x6" flat stock.
Length 3/16" to 8".
Cuts per minute 25 to 175.
Automatic Feed and Circulating Pump.
Made in three sizes.

UTILITY MANUFACTURING COMPANY
Cudahy, Wisconsin
Write Today for Complete Information

VULCARITES

DISPERSIONS OF RUBBER CHEMICALS

for

NATURAL AND SYNTHETIC LATEX COMPOUNDING

•

"VULCARITE" denotes individual or composite ball-milled dispersions of zinc oxide, sulfur, antioxidants and accelerators.

"VULCARITE" also signifies the most exacting and rigid quality control according to your specifications.

•

Our sales and technical staffs are at your disposal.

NEW ENGLAND OFFICE:
Alco Oil & Chemical Corp.
610 Industrial Trust Building
Providence 3, R. I.

ALCO OIL & CHEMICAL CORP.
Trenton Ave. and William St., Philadelphia 34, Pa.

WEST COAST REPRESENTATIVE:
H. M. Royal, Inc.
Whse., 4814 Loma Vista Ave.
Los Angeles 58, Cal.

STABILIZING AGENTS (Cont'd)

Lithium Stearate	lb.	.57	.62
Metasap 613-A*	lb.	——	.69
613-B*	lb.	——	.84
613-C*	lb.	——	1.06
621*	lb.	——	.88
Modicol N*	lb.	.41½	.42½
S*	lb.	.30⅜	.31⅜
Sodium Silicates	cwt.	1.00	5.25
Stabelan E*	lb.	1.35	1.50
XL*	lb.	.55	.65
HR-50*	lb.	.75	.90
HR Liquid*	lb.	.65	.75
HR Paste*	lb.	.85	.95
HR Powder*	lb.	.95	1.05
Stabilizer No. 3*	lb.	1.90	2.00
No. 42*	lb.	.83	.93
No. 52*	lb.	1.90	2.00
No. 89X*	lb.	.75	.80
No. 143*	lb.	.80	.90
BC-12*	lb.	.87	.95
B-5*	lb.	——	.70
CH-14*	lb.	——	.65
CH-20*	lb.	——	.65
E6B*	lb.	——	.95
E-49*	lb.	——	.60
E-98*	lb.	——	.55
G-1*	lb.	1.25	1.40
HR*	lb.	.85	.89
JCX*	lb.	——	.63
L*	lb.	——	.60
OM-10*	lb.	——	1.95
OM-18*	lb.	——	3.25
SN*	lb.	——	.48
V-1-N*	lb.	——	.43
VL-3*	lb.	——	1.00
Staflex OY*	lb.	——	1.20
QXMA*	lb.	——	.70
Stayrite 10*	lb.	.32	.37
P-10*	lb.	.39	.44
15*	lb.	.53	.58
20*	lb.	.37	.42
22*	lb.	1.30	1.34
25*	lb.	.35	.40
70*	lb.	.68	.70
71*	lb.	.88	.90
75*	lb.	.68	.70
76*	lb.	.58	.60
80*	lb.	.68	.70
90*	lb.	.68	.70
95*	lb.	.68	.70
229*	lb.	.45	.50
Vanstay L*	lb.	.33	.35
H.T.*	lb.	.90	.92
S*	lb.	.63	.65

STIFFENING AGENTS

Stiffening Agent 710*	lb.	——	.88

SUN CHECKING AGENTS

Allied AA-1144*	lb.	.23	.24
AA-1177*	lb.	.15½	.16½
Antisol*	lb.	——	.23
Antisun* (Chipped)	lb.	.15½	.17½
(Slabbed)	lb.	.15	.17
Heliozone*	lb.	.30	.31
Microflake*	lb.	.20	.24
NBC*	lb.	——	1.55
Ross Sunproofing Waxes*	lb.	——	.13½
Sonolite 100*	lb.	.17	.22
127*	lb.	.16½	.20½
154*	lb.	.23	.25
Sunproof*	lb.	.31	.32
713*	lb.	.25	.26
Improved*	lb.	.25	.26
Super*	lb.	.40	.41
Jr.*	lb.	.20	.21
Tonox*	lb.	.52	.54

SURFACE ACTIVE AGENTS

Aquarex D*	lb.	——	.78
MDL*	lb.	——	.33
ME*	lb.	——	.80
NS*	lb.	——	.60
SMO*	lb.	——	.50
WAQ*	lb.	——	.22
Emulphor EL-620*	lb.	——	.40
Igepal CO-730*	lb.	——	.29
CO-850*	lb.	——	.29
CO-880*	lb.	——	.29
Igepon CN-42*	lb.	——	.25
T-77*	lb.	——	.49
Kessco 50201*	lb.	——	.43½
50203*	lb.	——	.44
18201*	lb.	——	.38
18203*	lb.	——	.35¼
Pluronic L62*	lb.	.33½	.39
L64*	lb.	.33½	.39
Sellogen Gel*	lb.	——	.12¾

TACKIFIERS

Arcco 620-32B*	lb.	.20	.21
716-30*	lb.	.18	.19
1041-21*	lb.	.16½	.17½
Bunaweld Polymer No. 780*	lb.	——	.24
No. 5514*	lb.	——	.35
Galex* (dms.)	lb.	.15¼	.18
Indopol H-300*	gal.	1.00	1.21
Koresin*	lb.	——	.95
Liquid Rubber Flux*	lb.	——	.14
Nilox* (c.l.)	cwt.	——	14.50
Resin V	lb.	——	.23½
Synthol*	lb.	——	.24¾
Tackifier 1041-21*	lb.	.16½	.17½
Vistac No. 1*	gal	1.00	1.21
A*	lb.	.21½	.22¼
Zirex* (c.l.)	cwt.	——	14.75

THICKENERS (For Latex)

Alcogum AN-6*	lb.	——	.05
AN-10*	lb.	——	.08½
Betanol* (dms.)	lb.	.70	.95
Good-rite K-702*	lb.	.34½	.35
K-704*	lb.	.21	.22
K-705*	lb.	.31	.32
K-707*	lb.	.18	.19
K-708*	lb.	.29	.30
K-710*	lb.	.15	.16
Modicol VD*	lb.	.13⅜	.14⅜
VE*	lb.	.13⅜	.14⅜
Polyco 296 BT*	lb.	.15	.16
296-N*	lb.	.15	.16
530*	lb.	.15	.16
Propylene Laurate (dms.)	lb.	.57	.82
Sodium Silicate, 41°/1:3.2	cwt.	1.00	2.10

VULCANIZING AGENTS

Selenium

Vandex*	lb.	——	7.25

Sulfur

Aero Brand*	cwt.	——	2.40
Blackbird* (c.l.)	cwt.	——	2.85
Cloud* (c.l.)	cwt.	——	2.80
Crystex*	lb.	.19½	.23
Darex Dispersed Sulfur*	lb.	.14	.16
Devil A* (c.l.)	cwt.	——	2.40
Dispersed Sulfur	lb.	.14	.16
Insoluble Sulfur 60*	lb.	.12½	.13
Ko-Blend IS*	lb.	——	.39
Mist* (Wettable) (c.l.)	cwt.	——	4.00
Spider* (c.l.)	cwt.	——	2.80
Star* (c.l.)	cwt.	——	3.25
Sulfasan R*	lb.	——	1.50
Tire* (c.l.)	cwt.	——	2.40
Tube* (c.l.)	cwt.	——	3.25
Vultac 2*	lb.	.47	.49
3*	lb.	.51	.53

VULCANIZING AGENTS (Cont'd)

Tellurium

Telloy*	lb.	——	2.50

WETTING AGENTS

Advawet No. 10*	lb.	——	.20
No. 33*	lb.	——	.48
Aerosol 18*	lb.	——	.40
AY*	lb.	1.00	1.20
MA 80%*	lb.	.67	.72
OT 75% Aqueous*	lb.	.63	.68
OT 100%*	lb.	1.00	1.20
Alrosal* (dms.)	lb.	——	.40
Alrosperse*	lb.	——	.18
Areskap 50*	lb.	.30	.38
Dry 100*	lb.	.60	.72
Aresket Dry 300*	lb.	.60	.72
Aresklene 375*	lb.	.42	.57
Armacs*	lb.	.28	.77
Arquads*	lb.	.24	.60
Emcol 5100* (dms.)	lb.	——	.30
5130* (dms.)	lb.	——	.30
Etho-Chemicals*	lb.	.26	.58
Kesco E-122* (dms)	lb.	——	.45
18201*	lb.	——	.38
Krelson 8G* (dms.)	lb.	.26	.32
Lecithin	lb.	.13	.17
Modicol N*	lb.	.41½	.42½
S*	lb.	.30⅜	.31⅜
Orvus AB Granules*	lb.	.16	.17
Parnol*	lb.	.13	.18
Selapon Gel*	lb.	——	.13
Santomerse D*	lb.	.44	.65
S*	lb.	.13	.25
Sorapon SF-73*	lb.	——	.18
SF-78*	lb.	——	.30
Sorbit P*	lb.	——	.28
Stablex G*	lb.	.50	.70
Tergitol 4* (dms., dlvd.)	lb.	.32	.33
7* (dms., dlvd.)	lb.	.43	.44
O8* (dms., dlvd.)	lb.	.31	.32
P28* (dms., dlvd.)	lb.	.18½	.19
Trenamine W-30	lb.	——	.15
Vultamol*	lb.	——	.17½
Wetsit Conc.*	lb.	.25	.28

MISCELLANEOUS CHEMICALS

Aquarex G*	lb.	——	.21
Aquesperse 30*	lb.	——	.11
Arcopel W-18*	lb.	.17	.19
Copper Inhibitor X-872-L*	lb.	——	2.01
D-Tac*	lb.	——	.22
2-Ethyl Hexanol	lb.	.23¾	.24¾
Fura-Tone Resin 1226*	lb.	.41	.43
HB-20*	lb.	.16	.17
HB-40*	lb.	.23	.24
MODX*	lb.	.32½	.34½
BF*-13	lb.	——	.26½
Nullapon B-F-13*	lb.	——	.26½
BF-78*	lb.	——	.61½
Para Resin 2457*	lb.	.04	.04½
2702*	lb.	.04	.04½
2718*	lb.	.04	.04½
Pigmented Filmite* (dlvd.)	lb.	——	.16¾
Resorcin, Tech.	lb.	.77½	.78½
Rio Resin*	lb.	.60	.62
Rongalite CX*	lb.	——	.21½
Sherosope F*	lb.	.15½	.17¾
F-455*	lb.	.13½	.15¾
L*	lb.	.14	.16¾
N*	lb.	.15	.17¾
T*	lb.	.16½	.18¾
Sublac Resin PX-5*	lb.	.23½	.24½
Sulfasan R*	lb.	——	1.50
Synpep*	lb.	.54	.60
Thickol LP-2*	lb.	.96	2.06
LP-3, LP-32, LP-33*	lb.	.96	1.06
LP-8, LP-38*	lb.	1.25	1.37½
Tysonite*	lb.	.24	.24¾
Vanfre*	gal.	2.50	3.00

BOOKS for Technical Men

LATEX IN INDUSTRY by Royce J. Noble	**PRICE: $15.00* (postpaid-U.S.)**
RUBBER: NATURAL AND SYNTHETIC by H. J. Stern	**PRICE: $12.00* (postpaid)**
LATEX AND RUBBER DERIVATIVES—Vols. II & III by F. Marchionna	**PRICE: $10.00* (postpaid)**
ANNUAL BIBLIOGRAPHY OF RUBBER LITERATURE: 1946-1948 EDITION	**PRICE: $7.50* (postpaid)**
RECLAIMED RUBBER by John M. Ball	**PRICE: $5.00* (postpaid-U.S.)**

Available from RUBBER AGE
101 West 31st St., New York 1, N. Y.

** Add 3% for New York City Addresses*

CLASSIFIED WANT ADS

RATES:

All Classifications (except Positions Wanted):
12c per word in light face type—Minimum, $5.00
18c per word in bold face type—Minimum, $5.00

Positions Wanted: (Light face type only)
$1.00 for 25 words or less; extra words, 5c each.

When Box Number is used, add 5 words to word count

Heading on separate line, $1.20 in light face; $1.80 in bold face.

Advertisements in borders: $20.00 per column inch; maximum, 85 words per inch.

All Classified Advertising must be paid in advance except for advertisers on contract. Send check with copy.

Replies to keyed advertisements will be forwarded to advertiser without charge.

Address all replies to Box Numbers care of RUBBER AGE, 101 West 31st St., New York 1, N. Y.

Copy for September, 1955, issue must be received by Wednesday, August 31st.

POSITIONS WANTED

PRODUCTION ENGINEER desires new connections. Competent as technical director, process or project supervisor. Broad practical experience in mechanicals, sponge rubbers and extrusion-compression moldings of plastics. Address Box 446-P, RUBBER AGE.

MANUFACTURING EXECUTIVE, rubber technologist, 15 years in factory management, supervision of engineering, production, personnel, quality control, cost reduction, product development. Southern California location. $12,000 - 15,000 range. Address Box 425-P, RUBBER AGE.

RUBBER TECHNOLOGIST desires connection with new or going concern. Broad experience in compounding, development work and production of molded, extruded and calendered products, including sponge rubber. Have numerous trade connections. Prefer Eastern location. Address Box 434-P, RUBBER AGE.

LATEX CHEMIST, PLANT MANAGER—15 years broad experience in emulsions and solvent adhesives for shoe, leather, handbag, fabrics, plastics, foil, foam sponge, paper products and vinyl primers. Knows combining, laminating, shoe counter dip, castings, coatings and pressure sensitive adhesives. Desires top level position or sales. Address Box 454-P, RUBBER AGE.

MOLD DESIGN DEVELOPMENT ENGINEER—10 years' experience product and equipment design for molded mechanical and foam rubber products, cord sets, some plastics. Resumé on request. Address Box 442-P, RUBBER AGE.

WIRE AND CABLE MANUFACTURING EXECUTIVE, rubber technologist. Broad experience manufacturing, product engineering, marketing, and executive management. Excellent references. Address Box 447-P, RUBBER AGE.

RUBBER TECHNOLOGIST—Chemical engineer, age 31, with eleven years broad experience in all phases of mechanical rubber goods compounding, development, and production trouble-shooting. Responsibility desired with progressive organization where initiative and ability are recognized. Address Box 448-P, RUBBER AGE.

RUBBER TECHNICIAN and production manager interested in securing new position. Have fifteen years experience in all phases of molded and extruded goods, including development, planning and management. Responsible position with progressive manufacturer desired. Address Box 455-P, RUBBER AGE.

HELP WANTED

LARGE PLASTIC TOY MANUFACTURER wishes also to develop rubber and plastics toys combined or all-rubber toys, looking for designer and developer with know-how of rubber production. Fee or permanent basis.

Address Box 443-W, RUBBER AGE

CHEMIST — CHEMICAL ENGINEERS
"Positions with the better firms"
An active, confidential service!
Interview at your convenience!
"Many Junior Positions"
Call, write, or wire:—GLADYS HUNTING (Consultant)
DRAKE PERSONNEL, INC.
220 So. State St., Room 628, Chicago 2, Ill.
HArrison 7-8600

HELP WANTED—Continued

RUBBER AND PLASTICS
Rubber Chemist, sponge experience desirable, plant or laboratory.
Rubber Chemist, general compounding and plant experience desirable.
Plastics Chemists or Engineers, laboratory and plant experience desirable.
Quality Control Supervisor, capable of installing new department.
Expanding Operation
Opportunities for Advancement
Salaries open. Details on request.
Write: Dale A. Dougherty
Assistant to the President
O'SULLIVAN RUBBER CORPORATION
Box 603, Winchester, Virginia

LATEX FOAM CHEMIST—Established Eastern manufacturer seeks man with extensive experience in compounding and controlling latex foam. Excellent opportunity for exceptional man. Relocation required. All replies confidential. Our organization knows of this advertisement. Submit resumé. Address Box 431-W, RUBBER AGE.

RUBBER CHEMISTS—Degree in chemistry or chemical engineering. Up to five years' experience in rubber and polymer processing, development or production. Progressive company, well-equipped laboratory, permanent position with opportunity for advancement in expanding operation. Write giving age, experience and education. Replies held confidential. Box 369, ERIE, PENNSYLVANIA.

RUBBER TECHNOLOGIST—ASS'T PLANT MANAGER
Well established Indiana company requires aggressive man experienced in manufacture of mechanical, sponge and extruded rubber. Must be of executive caliber able to assist in coordination and direction of working force. Excellent salary and immediate opportunity for advancement for right individual. Give complete resumé of experience in first letter. References required. Replies will be confidential. Our employees know of this advertisement. Address Box 445-W, RUBBER AGE.

CHIEF CHEMIST—Capable of directing complete lab operations in highly successful company. Must be above average in ability to manage other chemists. Must have background knowledge to set up development and control. Knowledge of foam rubber and polyurethane, adhesives or coatings of latex and vinyl helpful. Should be between 36 and 45 years of age and ambitious to succeed. $10,000 per year to start. Address Box 449-W, RUBBER AGE.

RUBBER CHEMIST
General compounding experience of 3 to 5 years preferable. Abrasive background helpful but not necessary. Man willing to locate in northern Illinois with medium sized company with full employee benefit program. In reply state fully qualifications, salary requirements. Address Box 450-W, RUBBER AGE.

RUBBER PLANT SUPERVISOR
Man to supervise production in a new plant devoted exclusively to molding and extruding operations. Plant located in medium sized town in southeastern section of country. Applicant must be able to assume responsibility for coordination of all production activities, and assist in the training of departmental foremen. Address Box 451-W, RUBBER AGE.

EXECUTIVE TECHNICAL SALES OFFICE
***Nelson* EMPLOYMENT SERVICE**
specialist for the "Rubber Industry"
HAROLD NELSON — 653 FIRST NATIONAL TOWER
PHONE: PORTAGE 2-8801 — AKRON 8, OHIO

ROTEX SCRAP
BUYING AND SELLING

RUBBER	PLASTICS	SERVICES
Uncured Stocks	Vinyl — Polyethylene	Mill-Compounding
Scorched Compounds	Bought — Graded — Sold	Extruding — Pelletizing
Cured Overflow	Cuttings, trimmings, Overflow,	Cutting — Grinding
Graded to specification	Slabs, Lumps, Discontinued Lots	Separating, Coloring

ROTEX RUBBER COMPANY, INC., 1-23 JABEZ ST., NEWARK 5, N. J. • TEL. MARKET 4-4444

RUBBER CHEMIST

TO ASSIST CHIEF CHEMIST

In development
and factory control
Insulated wire
Experience helpful

SEND COMPLETE RESUME TO

HATFIELD WIRE
and Cable Division
HILLSIDE, N. J.

RUBBER CHEMIST

If you are now (or have been in the recent past) actively engaged in rubber chemistry and like the challenge presented by the opportunity to write for a technical publication, you may be the man we need.

You should have had about three to five years plant experience, be about 30 years of age, and want to work in the New York City area for a progressive technical journal. You should have the ability to express your thoughts clearly, be able to interpret technical material and be able to meet and talk freely with people.

Your work will be editing and originating technical material. You will work in a relatively small organization devoted to a single field. Surroundings and working conditions are pleasant and future prospects are good.

Your reply will be held in absolute confidence. If you are interested, please write stating education, experience, salary desired. Send recent snapshot.

Address Box 420-W, RUBBER AGE

RUBBER RESEARCH

Are you interested in unconventional approaches to rubber compounding as part of an aggressive research program on synthetic rubber? If your background includes graduate training with practical compounding experience and you enjoy research in the field, we have positions to fit your experience and interest.

Reply by letter giving age, experience and other qualifications.

Employee Relations Manager
Research and Development Department
Phillips Petroleum Company
Bartlesville, Oklahoma

Phillips 66

Opportunities
CHEMISTS OR CHEMICAL ENGINEERS
with
FIVE TO TEN YEARS' RUBBER EXPERIENCE
for
SALES SERVICE AND DEVELOPMENT
location
EASTERN SEABOARD

Give full details on age, education, experience. Replies held confidential. Our employees know about this ad.
ADDRESS BOX 432-W, RUBBER AGE

The French Rubber Journal

REVUE GENERALE DU CAOUTCHOUC

42, rue Scheffer. Paris 16. France
Monthly Magazine established in 1924

Deals with all that concerns rubber. Up to date on every problem of the day. Also monthly French and Foreign rubber bibliography.

Subscription rate: 3500 Francs a year
Price per copy: 400 Francs

Free sample copy on request

HELP WANTED—Continued

CHEMICAL ENGINEER—OPENINGS WITH A FUTURE available for young men in a new laboratory and plant. Five years or more experience in compounding all types of rubber and synthetic rubber for spread and calendered coated fabrics. State all particulars in resumé with a picture if possible. Address Box 422-W, RUBBER AGE.

CHIEF LATEX CHEMIST to direct Southern manufacturing division of latex compounds for textile industry. Must be tops on compound experience and development. Excellent opportunity in established growing concern. State fully qualifications and requirements. Address Box 423-W, RUBBER AGE.

ADHESIVES CHEMIST

A chemist or chemical engineer for development work in the formulation and processing of rubber-based adhesives, particularly pressure sensitive type. Experience desirable but not necessary. Salary will be adjusted to degree of experience. Should have training in chemistry and formulation of rubbers and resins. Desirable to have man who can handle development work with minimum of supervision. Position offers opportunity for direct contact with suppliers and with sales and production.

Position is at the modern Research Center located 40 miles from New York City in a rural New Jersey area. Send resume of qualifications to:

JOHNS-MANVILLE
Research Center, Manville New Jersey
Att: Personnel Manager

softeners and plasticizers for rubber from the pine tree

ROSIN OIL • PINE TAR
BURGUNDY PITCH
GALEX a non-oxidizing RESIN

Send for "Pine Tree Products" Booklet

NATIONAL ROSIN OIL PRODUCTS, Inc.
Americas Bldg., Rockefeller Center, 1270 Ave. of the Americas, New York 20
Refinery: Savannah, Ga. • Branches in Principal Cities

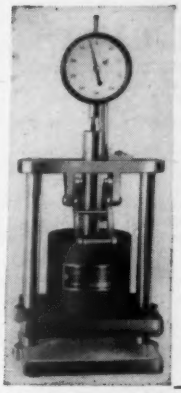
PIONEERS OF THE INDUSTRY

Lowest Priced
WATERGROUND
MICA

Our White and Biotite Waterground Micas have been preferred in the Rubber Industry for years.

Biotite Waterground Mica is the lowest priced WATER-GROUND Mica on the market.

The English Mica Co.
STERLING BUILDING • STAMFORD, CONN.



TESTED IS TRUSTED

WILLIAMS PLASTOMETER

One of the many *Scott Testers for "World-Standard" testing of rubber, textiles, plastics, paper, wire, plywood, up to 1 ton tensile.

SCOTT TESTERS
*Trademark

SCOTT TESTERS, INC.
85 Blackstone St. Providence, R. I.

WE BUY AND SELL
•SCRAP RUBBER •CRUDE RUBBER
•HARD RUBBER DUST •PLASTICS

BEST IN VALUE AND SERVICE

George Woloch co., inc.
601 W. 26th St., New York 1, N.Y.
Phone: ORegon 5-2350
Cable Address: GEOWOLOCH, N.Y.

BRANCH OFFICES
AKRON, Ohio
SWandale 4-5237

LONDON, England
58 Bow Road
Advance 5411
Curtis-Woloch Co. Ltd.

PROCESSING PLANT • KENILWORTH, N. J. • PHONE: CHESTNUT 5-8939

Mold Lubricants

Silicones • Non-Silicones

We blend the mold lubricant to the job. Te'l us your molding problems. We have a wide variety of standard lubricants from which to choose the one for your job.

Write today for technical data and price lists.

Stoner's Ink Company
Quarryvilie, Pa.

Hakuenka — an ultra-fine colloidal calcium carbonate — is steadily increasing in use the world over.

HAKUENKA

Special attention to Export Trade
SHIRAISHI KOGYO KAISHA, LTD.
Kitahama, Osaka, Japan

Directory of CONSULTANTS

R. R. OLIN LABORATORIES, INC.
(Established 1927)
Consultation—Development—Research for rubber and plastics industries and for raw materials suppliers for same.
P. O. Box 372RA — Akron (9), Ohio **Tel HEmlock 4-3724**

SOUTH FLORIDA TEST SERVICE
(Established 1931)
Corrosion, weathering and sunlight tests. Four locations in Southern Florida for inland, salt atmospheric, tidewater and total immersion exposure tests.
4201 N. W. 7th St., Miami, Florida

PHILIP TUCKER GIDLEY
Consulting Technogolist—Research, product development, formulas, factory plans, engineering, chemical and physical testing.
Fairhaven, Massachusetts

HALE AND KULLGREN, INC.
Specialists in Process and Plants for Rubber and Plastics
A Complete Engineering Service: including: Economic Surveys; Process Design; Installation; Contracting and Operation.
613 E. Tallmadge Ave., Akron 10, Ohio

HOWE MACHINERY CO., INC.
30 Gregory Avenue, Passaic, N. J.
DESIGNERS & BUILDERS
OF "V" BELT MANUFACTURING EQUIPMENT
Cord Latexing, expanding mandrels, automatic cutting, skiving, flipping and roll drive wrapping machines.
ENGINEERING FACILITIES FOR SPECIAL EQUIPMENT
Call or Write

MIXING
To Your Specification
K. B. C. INDUSTRIES, INC. **NEW HAVEN, CONN.**
881 State St. Tel: State 7-5662
Otto J. Lang, General Manager

IOI
Engineered Application of Heat in Continuous Materials Handling Systems
INDUSTRIAL OVENS, INC.
13825 TRISKETT ROAD, CLEVELAND 11, OHIO

BLACK
Master Batching
Mixing of all kinds
BESTREAD PRODUCTS CO. **STOUGHTON, MASS.**

RMP
ANTIMONY FOR RED RUBBER
• ATTRACTIVE
• NON-DETERIORATING
RARE METAL PRODUCTS CO.
ATGLEN, PA.

BUSINESS OPPORTUNITIES

CUSTOM MIXING, GRINDING and DISPERSION. Production time available on Rotary Cutters, Colloid Mills and explosion-proof Churns with attached filtering mediums. At your service—the technical know-how and completely equipped control laboratory. ADHESIVES & COATING SPECIALTIES, INC., Bldg. #22, 410 Frelinghuysen Ave., Newark 5, N. J.

MANUFACTURERS AGENT: Successful sales executive desires connection with manufacturer of Plastisols, Organosols, Vinyl heat seal compounds or other products requiring technical sales ability. Operating out of Metropolitan New York covering East. Will consider only well equipped firm with good technical facilities. Commission basis only. Address Box 437-B, RUBBER AGE.

What capable plant in the technical rubber goods trade or in the chemical industry would be interested in being represented in Switzerland by a competent commercial man? The advertiser has been well introduced with all Swiss manufacturers and wholesale dealers for many years, and is therefore in a position to attain interesting turnovers. Address Box 440-B, RUBBER AGE.

NEOPRENE Q. Genuine buyer requires small or large quantities in good condition. Address Box 441-B, RUBBER AGE.

SEEKING RUBBER COMPANY MERGER

Does your company need—Working Capital? Proprietary Products? Management Assistance? A National Sales Organization?

Are you doing, or do you have the potential for about $1,000,000 in gross sales? Would our presently sub-contracted $400,000 in rubber molded goods permit you to operate more efficiently? Do you have good ability at rubber-to-metal bonding?

If you can answer "yes" to most of these questions, if you are interested in associating with a vigorous, successful, young company in a new field, one who is well financed, and with a marketable stock, then we would like to talk with you.

Your response to this ad will be held in confidence, if requested. No Brokers. Address Box 452-B, RUBBER AGE.

MASTER BATCHING & COMPOUNDING
to your specifications
WASHINGTON RUBBER CO.
P.O. BOX 241 **WASHINGTON, PA.**

Custom Mixing RUBBER-PLASTICS
We do milling and compounding of all types—black or color—master batches
All mixing done under careful supervision and laboratory control.
Phone: Butler 9-0400
Pequanoc Rubber Co.
MANUFACTURERS OF RECLAIMED RUBBER
MAIN SALES OFFICE and FACTORY, BUTLER, N. J.

EQUIPMENT WANTED

WANTED—One 84″ rubber mix mill with motor, drive and all controls and also one laboratory Banbury. Please list all details. Address Box 444-E, RUBBER AGE.

WANTED: Late model used 12″ x 30″ rubber mill. Must be compact in design. Address Box 453-E, RUBBER AGE.

EQUIPMENT FOR SALE

21—Twin (Watch Case) 40″ National Tire Presses, complete; 1—3-Roll 66″ Farrel Calender, Motor and Controls; Machines for V-Belts and Fan Belts, complete setup. BREWSTER MACHINE CO., Jim Brown, 349 East Exchange St., Akron, Ohio.

Hydraulic presses and pumps rebuilt, repaired. New presses from laboratory up to 1000 tons. Pumping units up to 10,000 p.s.i., all capacities. CLIFTON HYDRAULIC PRESS CO., 290 Alwood Rd., Clifton, New Jersey.

FOR SALE—1—National Erie 8½″ strainer; 1—HPM hydro pneumatic accumulator, 200-3100 pounds; 1—Farrel 18″ x 48″ 3-roll vertical calender; 1—6″ x 16″ lab mill; also presses, vulcanizers, mixers, etc. CHEMICAL & PROCESS MACHINERY CORP., 146 Grand Street, New York 13, N. Y.

FOR SALE: 1—Royle #4 extruder, motor driven; 2—Baker-Perkins size 15, 100-gallon jacketed mixers; 1—Thropp 3-roll 54″ calender, m.d.; 1—6″ x 12″ laboratory mill, m.d.; 1—B & J rotary cutter, Model O, m.d.; 5—horizontal dry powder ribbon mixers, 4000#, 1500#, 500#; 1—new 3-roll 6″ x 16″ laboratory calender, m.d.; 1—Farrel-Birmingham 60″ mill with reduction drive, 150 HP motor, floor level mounting; 1—Fitzpatrick "D" comminutor, s.s. contact parts jacketed; 1—Mikro-Pulverizer #2TH, with motor; 4—Reed-Prentice & WS injection molding machines, two 16 oz.; also other sizes Hydraulic Presses, Tubers, Banbury Mixers, Mills, Vulcanizers, Calenders, Pellet Presses, Cutters. WANTED: Your Surplus Rubber Machinery. CONSOLIDATED PRODUCTS COMPANY, INC., 70 Bloomfield St., Hoboken, N. J. HOboken 3-4425; N. Y. Phone: BArclay 7-0600.

SAVE WITH GUARANTEED REBUILT EQUIPMENT: HYDRAULIC PRESSES (compression molding): Dunning & Boschert 2—12″ ram, 170 ton; 2—10″ ram, 118 ton; Baldwin Southwark 4—26″ x 26″, 8″ ram, 75 tons; 5—26″ x 26″, 7″ ram, 57.7 tons; 5—15″ x 15″, 8″ ram, 75 tons; 4—14″ x 14″, 8″ ram, 75 tons; 2—19″ x 24″, 10″ ram, 78 tons; 1—18″ x 18″, 7″ ram, 57.7 tons; 3—12″ x 12″, 7½″ ram, 66 tons; 1—8″ x 9″, 4½″ ram, 20 tons; D & B 12″ x 12″, 3″ ram, 10 tons. LABORATORY PRESSES: Carver 6″ x 6″, 10 ton; W & S 6″ x 6″, 20 tons; Preform Presses, 5½ Ton Colton and Stokes R. M. D. NEW UNIVERSAL DUAL PUMPING UNITS: 3—15 HP. NEW LABORATORY MILLS AND CALENDERS. Also Extruders, Mixers, Vulcanizers, Injection Molding Units, etc. UNIVERSAL HYDRAULIC MACHINERY CO., INC., 285 Hudson Street, New York 13, N. Y.

MILLS: 1—EEMCO 20″ x 22″ x 60″, 200 HP Motor and Speed Reducer. 4—Farrel 18″ x 50″, 250 HP Speed Reducer. Available as a Mill Line or Individual Units. 4—Farrel 16″ x 40″, 150 HP Motor and Speed Reducer.

MIXERS: Banbury #1, Completely Chrome Plated Interior for Plastics, 50 HP Motor Drive, Oil Heating System, All Controls, Baker-Perkins, Jacketed, 2¼ Gallons, Gear-Motor Drive.

EXTRUDERS: 6″ Royle #4, 6″ Allen-Williams Rapido, 4½″ National Rubber, 3½″ National Rubber, 3½″ Hartig, 2″ Royle #1, all Individual Motor Drive.

INJECTION MACHINES: IMPCO VF-822 and VF-822A, 350 Tons Clamp. HPM Model 200-H, 9 Oz., 200 Tons Clamp. HPM Model 350-H-16, 16 Oz., 350 Tons Clamp. Reed-Prentice 12 Oz. 1952 Machine. Reed-Prentice and Watson-Stillman 2 Oz.

HYDRAULIC PRESSES: Elmes 1000 Ton Hobbing Press, MD Pump. Baldwin-Southwark 3600 Ton Belt Press. HPM 750 Ton Self-Contained. Watson-Stillman and HPM 100 Ton, Burroughs 75 Ton Electrically Heated, HPM 35 Ton Molding Presses. Watson-Stillman and Elmes 30 and 20 Ton Lab Presses. Stokes Model 200D-3 and Model 235 Automatic and 200 Ton, 150 Ton and 150 Ton Semi-Automatic Presses.

TABLET MACHINES: Stokes S-5, R, T and RDS-3 and Colton 35 and #5½.

MISCELLANEOUS: B & J 1 HP Rotary Cutter, Calenders, Grinders, Pumps, Valves, Platens, etc.

JOHNSON MACHINERY COMPANY
683-R Frelinghuysen Avenue — Newark 5, New Jersey
BIgelow 8-2500
WHAT HAVE YOU FOR SALE? — **WHAT ARE YOU LOOKING FOR?**

THE **DAILY** GUIDE

This is indispensable to buyers of Rubber

THE TRADE NEWS SERVICE

Established 1915

24 Stone St. — **New York 4, N. Y.**

featuring

MARKET REPORTS • RUBBER IMPORTS • STATISTICS

Write for Free Trial Service

GUMMI UND ASBEST

Covering the Rubber, Asbestos, and Synthetics Industries

Read by all important plant personnel in more than 13 European countries . . . the Advertising Medium of all firms interested in rubber imports and exports. Send for sample copy and advertising rates.

Annual Subscription (Including Postage) — $4.00

Representative in U.S.A. and Canada:
Frederic Popper, 993 Whittier Avenue, Akron 20, Ohio

A. W. GENTNER VERLAG
14a Stuttgart, Germany (American Zone)

Need Additional Equipment?
Advertise in the Classified Section of
RUBBER AGE

Like **ONE** hammer

for a **CREW** of carpenters,

a **SINGLE** copy

of RUBBER AGE doesn't go very far!

RUBBER AGE is such an important tool of your business there ought to be enough copies for your key men to get maximum value from every issue . . . while it's still current!

The blank below will insure your getting the number of copies you need each month. Return it now, today, while it's fresh in your mind.

Rates in US: One year, $5; 2 years, $7.50; 3 years, $10

Please enter my subscription to RUBBER AGE for one year starting with the next issue.

☐ **Check enclosed** ☐ **Bill me**

Name _____
Title _____
Company _____
Street _____
City and State _____
Please check whether address is:
☐ **Company or** ☐ **Home**

Return to **RUBBER AGE** 101 W. 31st St. New York 1, N. Y.

1—1000 Ton Hydraulic press—28" ram
4—400 Ton Hydraulic presses—24" x 24"
1—18" x 50" Farrel mill with motor and drive
1—16" x 42" Farrel mill with motor and drive
1—16" x 42" Farrel 2 roll calender
1—9" x 20" Farrel 2 roll calender
New 8" x 18" Mills
New 6" x 12" Laboratory Mills

Mills from Laboratory size to 50" in stock.
Presses from 75 ton to 1000 ton in stock.

We specialize in rebuilding rubber and plastics machinery.
All of our rebuilt machinery is guaranteed.
Buying and Selling.

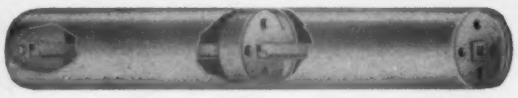
Reliable
RUBBER & PLASTIC MACHINERY CO., INC.
2014 UNION TURNPIKE NORTH BERGEN, N. J.
PHONE: UNION 5-1073

NATIONAL SHERARDIZING & MACHINE CO.

AIR BAG BUFFING MACHINERY
STOCK SHELLS HOSE POLES
MANDRELS

858 Windsor St., Hartford, Conn.
Representatives: Akron New York

STEEL CALENDER STOCK SHELLS



ALL STEEL, ALL WELDED CONSTRUCTION, with forged steel hubs for 1¼", 1½" and 2" square bars. 4", 5", 6", 8", 10", 12", 15", 20" and 24" diameters. Any length.
Also Special Trucks (Leaf Type) Racks, Tables and Jigs, Used in manufacturing rubber and plastic products.

THE W. F. GAMMETER COMPANY
CADIZ, OHIO

THE NAME TO REMEMBER
FOR PRECISION

McNEIL AKRON

Manufacturers of the World's
Finest Rubber Curing Equipment

THE AKRON RUBBER MACHINERY CO. INC.
"ARMACO"
New Rubber & Plastics Machinery
ALSO
A complete stock of used reconditioned guaranteed machinery for rubber & plastic.
Phone HE 4-9141 **P. O. Box 88 Akron 9, Ohio**

Volume IX
THE CHEMICAL FORMULARY
Editor-in-Chief, H. BENNETT
648 Pages • 5½ x 8½ • $7.50

This new volume is a collection of up-to-date formulae compiled by the country's leading industrial and research chemists. An entirely new book, complete in every detail, each formulae is new and different. All of the formulae are the result of long years of research and experiments.

No important industry has been overlooked. No matter how simple or complex a problem may be, this book will enable the solving of it easily and quickly. The chapter on rubber, resins, plastics and waxes contains many new and helpful formulae, many of which have never before been revealed. Get your copy today.

Order from
THE RUBBER AGE
101 West 31st Street, New York 1, N. Y.

BUYING-SELLING All kinds of *used* machinery for the Rubber and Allied Industries.

OFFERING NEW MACHINERY Hydraulic Presses, Laboratory Mills and Presses, Sponge Rubber Vulcanizing Presses, Drilled Steel Steam Platens, Rubber Bale Cutters guillotine type, Vulcanizers with quick opening doors, etc.

HIGH EFFICIENCY IN QUALITY, PRICE AND DELIVERY TIME
ERIC BONWITT 431 S. Dearborn Street Chicago 5, Ill.

---

for MAXIMUM returns at minimum cost,
advertise in the Classified columns of
RUBBER AGE

NEW and REBUILT MACHINERY
SINCE 1891
L. ALBERT & SON
Trenton, N. J. **Akron, O.** **Chicago, Ill.** **Los Angeles, Calif.**

WILLIAM TAPPER

USED RUBBER WORKING MACHINERY

20" x 22" x 60" mill
12" x 24"—2-roll calender
24" x 66"—3-roll calender
20—McNeil Tube Presses, 45" (singles)
Susan Grinder—50 hp motor
New Guillotine Bale Cutters

We Build New Lab Mills: 6" x 12" and 8" x 16"
We Pay Cash For Your Surplus Machinery

30 South Broadway, Yonkers, N. Y.

PHONE: YONKERS 3-7455
CABLE: WILTAPPER YONKERS, N. Y.

Index to Advertisers

Accurate Steel Rule Die Manufacturers 764
Adamson United Co. ..... —
Aetna-Standard Engineering Co. 654
Akron Equipment Co. 760
Akron Rubber Machinery Co. 788
Albert, L., & Son 788
Alco Oil & Chemical Corp. 781
Allied Chemical & Dye Corp. ..... —
American Cyanamid Co.
Intermediate & Rubber Chemicals Dept. 648
Pigments Div. 671
American Enka Corp. ..... —
American Maintenance Supply Corp. ..... —
American Rayon Institute, Inc. ..... —
American Resinous Chemicals Corp. ..... —
American Steel Foundries ..... —
American Zinc Sales Co. ..... —
Ames, B. C. Co. ..... —
Argus Chemical Corp. 688
Atlas Electric Devices Co. ..... —

Bell Kaolin 764
Bestread Products Co. 786
Black Rock Manufacturing Co. 773
Bolling, Stewart, & Co., Inc. 759
Bonwitt, Eric 788
Bridgwater Machine Co. ..... —
Brockton Cutting Die & Machine Co., Inc..... 779
Brooklyn Color Works, Inc. ..... —
Brown Co. 665

Cabot, Godfrey L., Inc. 661, 676
Calcium Products Div. ..... —
Cambridge Instrument Co., Inc. ..... —
Carey, Phillip, Manufacturing Co. ..... —
Carroll, J. E., & Co. 773
Carter Bell Manufacturing Co. 758
Case-Maul Manufacturing Co. 758
Celanese Corp. of America 680
Century Products Co. ..... —
Chemical Publishing Co., Inc. 788
CLASSIFIED ADVERTISING 783-88
Cleveland Liner & Manufacturing Co. 679
Clifton Hydraulic Press Co. 787
Columbia-Southern Chemical Corp. 663
Columbian Carbon Co. ..... Insert Following 724
Consolidated Products Co. 787
CONSULTANTS SECTION 786
Continental Carbon Co. 684, 685
Continental Machinery Co., Inc. ..... —
Coulter, James, Machine Co. ..... —
Cumberland Engineering Co., Inc. ..... —

D. P. R., Inc. 765
Darlington Chemicals, Inc. 763
Davis-Standard Sales Corp. 664
Dayton Rubber Co. 769
Diamond Alkali Co., Pure Calcium Prod. Div. —
Dow Corning Corp. 689
Drake Personnel, Inc. 783
du Pont de Nemours, E. I., & Co., Inc.
Elastomers Div. ..... Second Cover, 681
Durez Plastics & Chemicals, Inc. 656

Emery Industries, Inc. 667
English Mica Co. 785
Enjay Co., Inc. 749
Erie Engine & Manufacturing Co. 769
Erie Foundry Co. 646

Falls Engineering & Machine Co. 651
Farrel-Birmingham Co., Inc. 659
Ferry Machine Co. ..... —
Fink, F. J., & Co. 771
Flexo Supply Co., Inc. ..... —
Flightex Fabrics, Inc. 763
French Oil Mill Machinery Co. ..... —

Gammeter, W. F., Co. 788
General Latex & Chemical Corp. 779
General Magnesite & Magnesia Co. 761
General Tire & Rubber Co. ..... —
Genseke Brothers ..... —
Georgia Marble Co. ..... —
Gidley, Philip Tucker 786
Giffels & Vallet, Inc. 672
Glidden Co.
Chemicals-Pigments-Metals Div. ..... —
Goodman, G. F., & Son ..... —
Goodrich, B. F., Chemical Co. 639
Goodyear Tire & Rubber Co.
Chemical Div. .....642, 643, Insert Following 646
Gross, A., & Co. 757
Gummi und Asbest 787
Gussett Boiler & Welding, Inc. ..... —

Hale & Kullgren, Inc. 654, 786
Hall, C. P., Co. 652
Harchem Div. ..... —
Harshaw Chemical Co. 669
Harwick Standard Chemical Co.....Back Cover
Hercules Powder Co., Inc. ..... —
Heveatex Corp. ..... —
Hoggson & Pettis Manufacturing Co. 777
Holliston Mills, Inc. 775
Holmes, Stanley H., Co. 674
Howe Machinery Co., Inc. 786
Huber, J. M., Corp. 644

Independent Die & Supply Co. 762
Indoil Chemical Co. ..... —
Industrial Ovens, Inc. 786
Institution of the Rubber Industry ..... —

Johnson Corp. ..... —
Johnson Steel & Wire Co., Inc. ..... —
Johnson Machinery Co. 787

Kautschuk und Gummi 767
K. B. C. Industries, Inc. 786
Kenrich Corp. 650
Koppers Co., Inc. 753

La Goma 767
Lambert, E. P., Co. ..... —
Latex & Rubber, Inc. 683
Lehmann, J. M., Co., William R. Thropp & Sons Div. ..... —
Liquid Carbonic Corp. ..... —

Marbon Chemical Div. 649
Marine Magnesium Div. 660
Maryland Cork Co., Inc. ..... —
Merck & Co., Inc. 660
McNeil Machine & Engineering Co. 788
Meyercord Co. 762
Molded Fiberglass Tray Co. ..... —
Monsanto Chemical Co.
Rubber Chemical Dept. 655
Plastics Div. ..... —
Mt. Hope Machinery Co. ..... —
Muehlstein, H., & Co., Inc. 747

National Aniline Div. ..... —
National Chemical & Plastics Co. 777
National Forge & Ordnance Co. ..... —
National Rosin Oil Products, Inc. 785
National Rubber Machinery Co. ..... —
National Sheradizing & Machine Co. 788
National-Standard Co. ..... —
Naugatuck Chemical Division
U. S. Rubber Co. 692
Nelson Employment Service 783
Neville Chemical Co. 641
New Jersey Zinc Co. ..... —

Oakes, E. T., Corp. ..... —
Ohio-Apex Division
Food Machinery and Chemical Corp. ..... —
Olin Mathieson Chemical Corp. 691
Olin, R. R., Laboratories 786
Oronite Chemical Co. 756

Pan American Chemicals 754
Parsons-Plymouth, M. W., Inc. 775
Pasadena Hydraulics, Inc. 775
Paterson Parchment Paper Co. ..... —
Pennsylvania Industrial Chemical Corp. 653
Pequanoc Rubber Co. 668, 786
Phillips Chemical Co. 640, 784
Pittsburgh Coke & Chemical Co. ..... —
Pittsburgh Steel Co. ..... —
Plandex Corp. 753
Polymel Corp. .....Third Cover
Polymer Corp., Ltd. ..... —
Progressive Service Co. ..... —
Pure Carbonic Co. ..... —

Rand Rubber Co. ..... —
Randall, Frank E., Co., Inc. ..... —
Rare Metal Products Co. 786
Reliable Rubber & Plastic Machinery Co..... 788
Revue Générale du Caoutchouc 784
Rhodia, Inc. ..... —
Richardson, Sid, Carbon Co. 790
Rotex Rubber Co., Inc. 783
Royle, John, & Sons 688
Rubber Corp. of America 769
Rubber Age Books 781, 782
Rubber Age Circulation 787
Rubber Journal ..... —

St. Joseph Lead Co. ..... —
Scott Testers, Inc. 785
Semet-Solvay Petrochemical Div. ..... —
Servel, Inc. 677
Sharples Chemicals, Inc. .....Insert Following 674
Shaw, Francis, & Co., Ltd. ..... —
Shell Chemical ..... —
Shell Oil 673
Shiraishi Kogyo Kaisha, Ltd. 785
Simplex Cloth Cutting Machine Co., Inc. 760
Skelly Oil Co. 678
Skinner Engine Co. ..... —
Snell, Foster D., Inc. 779
Solvay Process Division ..... —
South Florida Test Service 786
South Texas Tire Test Fleet 773
Southeastern Clay Co. 771
Southern Clays, Inc. ..... —
Spadone Machine Co. 765
Stamford Rubber Supply Co. 771
Stanley Electric Tool Div. ..... —
Stauffer Chemical Co., Inc. 687
Stoner's Ink Co. 785
Sun Oil Co. 670, 751

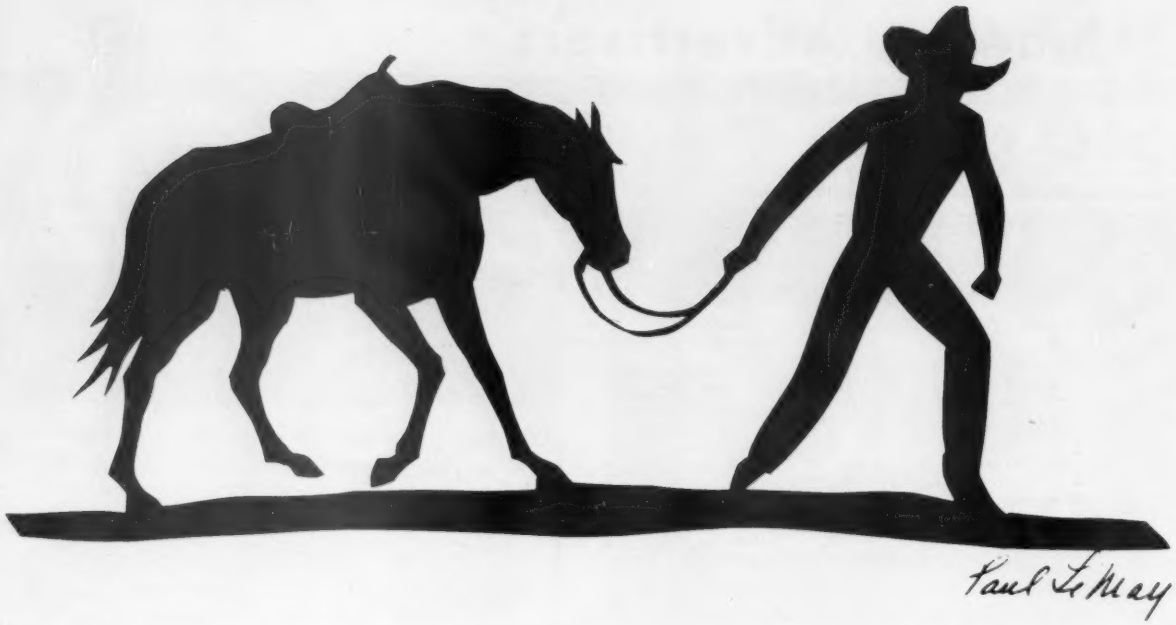
Tapper, William 788
Taylor Instrument Companies ..... —
Taylor-Stiles & Co. ..... —
Textile Proofers, Inc. ..... —
Thiokol Chemical Corp. ..... —
Thomaston Mills 777
Thropp, William R., & Sons, Div.
J. M. Lehmann Co. ..... —
Titanium Pigment Corp. 682
Tracerlab, Inc. 690
Trade News Service 787

United Carbon Co., Inc. ..... Insert Following 656
United Clay Mines Corp. ..... —
United Engineering & Foundry Co. ..... —
United Rubber Machinery Exchange ..... —
U. S. Rubber Co.
Naugatuck Chemical Div. 692
U. S. Rubber Reclaiming Co., Inc. 674
Universal Hydraulic Machinery Co. 787
Universal Oil Products Co. ..... —
Utility Manufacturing Co. 781

Vanderbilt, R. T., Co. ..... Front Cover
Velsicol Corp. 662

Wallace & Tiernan, Inc. ..... —
Washington Rubber Co. 786
Watson Standard Co. ..... —
Wellington Sears Co. 666
West Virginia Pulp & Paper Co. ..... —
Western Supplies Co. 686
White, J. J., Products Co. ..... —
Whittaker, Clark & Daniels, Inc. ..... —
Williams, C. K., & Co., Inc. 755
Witco Chemical Co. 684, 685
Woloch, George, Co., Inc. 785
Wood, R. D., Co. ..... —

HUGHES PRINTING CO.
EAST STROUDSBURG, PA.



...lightening the load

In this era of strong competition every business needs to avail itself of ways to lighten the load . . . ways to cut and hold down manufacturing costs. Compounders can lower their material cost without decreasing quality by using **TEXAS 109**, Sid Richardson Carbon Company's new super abrasion channel black.

Excellent Abrasion
Low Processing Cost
Good Flex Life
Good Electrical Conductivity
Exceptional Qualities in Butyl

. . . all at HAF prices

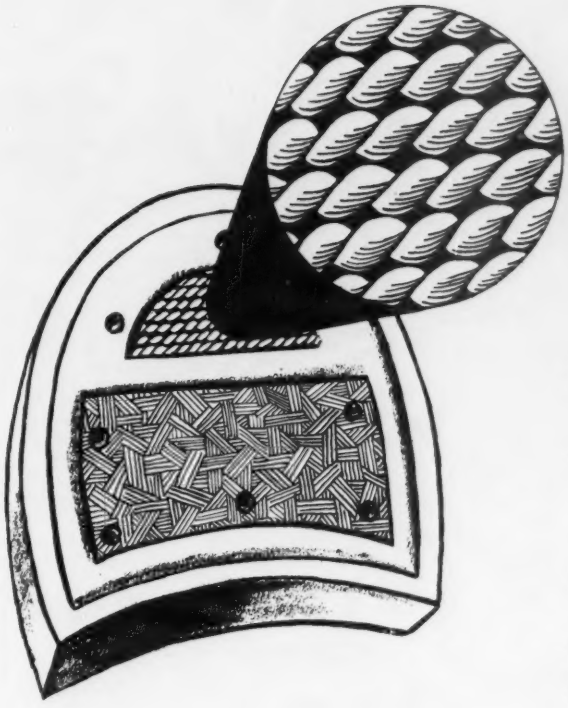
TEXAS CHANNEL BLACKS ®

Write, wire or telephone for samples and information.

Sid Richardson CARBON CO.

FORT WORTH, TEXAS

GENERAL SALES OFFICES
EVANS SAVINGS AND LOAN BUILDING
AKRON 8, OHIO



DETAILS

stand out when you use this *Outstanding* RESIN

POLYMEL DX

Pin point detail is the rule — not the exception — when your molded goods compounds are plasticized with POLYMEL DX.

This low-cost styrene copolymer resin, particularly suitable in highly loaded compounds, imparts easy processing properties and good mold flow to compounds based on natural and synthetic rubbers or combinations of the two.

Equally important, if you use high styrene resins, is the fact that by using POLYMEL DX, you can lower your resin use materially ***without sacrificing processing or physical properties.***

If you haven't yet investigated this unusual resin, send today for a generous sample of POLYMEL DX, or better yet, order enough for a trial run.

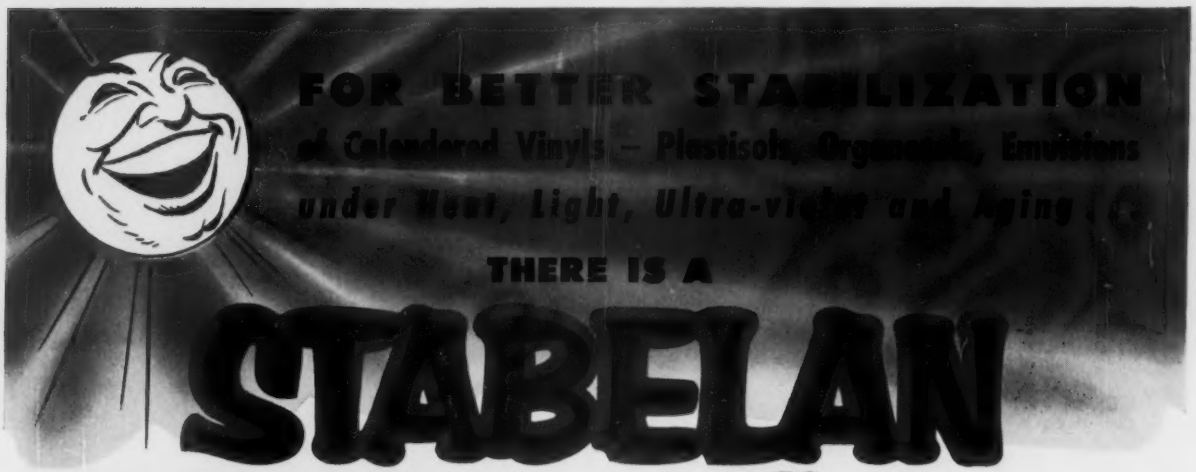
POLYMEL DX is available as a powder or in 2" lump form.

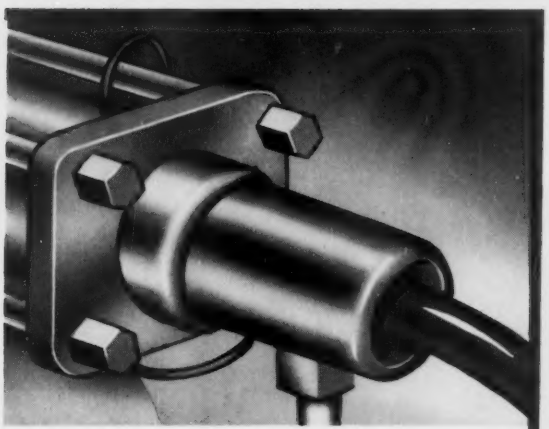
Prices fob Baltimore	1 drum to 4900 lbs.	— .1475¢ lb.
	5000 lbs. to truckloads	— .1425¢ lb.
	Truckloads	— .1375¢ lb.

THE POLYMEL CORPORATION

MANUFACTURERS OF
compounding ingredients for reinforcing, plasticizing, extending and processing natural and synthetic elastomers.

Plaza 2-1240 — 1800 BAYARD ST., BALTIMORE 30, MD.


FOR BETTER STABILIZATION
of Calendered Vinyls — Plastisols, Organosols, Emulsions
under Heat, Light, Ultra-violet and Aging (C)
THERE IS A
STABELAN



For Excellent Heat and Good Light Stability

STABELAN HR

PASTE - -

A "single package" stabilizer for high heat resistance plus good light stability . . . Contains cadmium and barium components and synergized chelating agent. Disperses easily in dry pre-blends, solutions and dispersions.

LIQUID - -

A synergized chelating agent.

POWDER - -

A metal bearing component of STABELAN HR paste.

STABELAN HR has been used with marked success in stabilizing all types of Vinyls containing organic and inorganic pigments.

For Excellent Light and Good Heat Stability

STABELAN E

STABELAN E — Paste — Provides excellent stabilizing for ultra-violet and outdoor aging . . . It gives good light fastness and heat stability. Heat stability and transparency may be improved when Stabelan E is used with Stabelan HR Liquid. Gives films that do not "blush" or absorb water . . . It is compatible with all tested pigments — even organic reds hold their hue and age well . . . It does not cause plating on rolls.

Write for complete data on these materials.

HARWICK STANDARD CHEMICAL CO.
60 South Sieberling Street, Akron 5, Ohio
Boston 16, Mass. Trenton 9, New Jersey Chicago 25, Illinois Los Angeles 21, Calif. Albertville, Alabama

39th YEAR

Rubber Age

COVERING THE MANUFACTURE OF RUBBER AND RUBBERLIKE PLASTICS PRODUCTS

SEPTEMBER, 1955

In This Issue

Vulcanizing rubber with gamma radiation .....page 865

Production and applications of balata ....page 872

Reinforcement of synthetic rubbers with silicas ..page 875

Ozone exposure versus natural aging tests ..page 884

Contents .....page 801

VANSTAY

Vinyl Heat Stabilizers

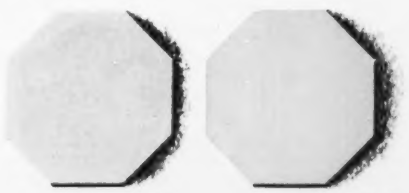
Developed to meet Industry's known processing and aging requirements.

VANSTAY HT VANSTAY S

This combination provides excellent heat protection during processing and in service. Comparing results after 60 minutes oven exposure at 350°F. proves the point.

VANSTAY C

Recommended heat stabilizer for heavily loaded tile formulations inhibits discoloration due to heat.



R. T. Vanderbilt Co., INC. *230 PARK AVENUE · NEW YORK 17, N. Y.*